

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

aSB191

.W5H37

c.2

Hard Red Spring Wheat Quality Report

1997 Crop

Physical, Chemical, Milling, & Baking Characteristics



Hard Red Spring and Durum Wheat Quality Laboratory
United States Department of Agriculture
Agricultural Research Service
Harris Hall, NDSU
RRVARC, Fargo, ND 58105
701-231-7728

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
NORTHERN PLAINS AREA
RED RIVER VALLEY AGRICULTURAL RESEARCH CENTER (RRVARC)

in cooperation with

STATE AGRICULTURE EXPERIMENT STATIONS

QUALITY EVALUATION OF HARD RED SPRING WHEAT CULTIVARS

1997 CROP^{1/}

by

G.A. Hareland, J. G. Wear, S. A. Radi, D. P. Puhr^{2/}, and M. Skunberg^{3/}

^{1/} This report represents cooperative investigations on the quality of Hard Red Spring Wheat cultivars from the 1997 crop. Some of the results presented have not been sufficiently confirmed to justify variety release. Confirmed results will be published through established channels. Cooperators submitting samples for analysis have been given analytical data prior to release of this report. This report is primarily a tool for use by cooperators and their official staff and to those individuals having direct and special interest in the development of agricultural research programs.

This report was compiled by the Agricultural Research Service, U. S. Department of Agriculture. Special acknowledgment is made to the North Dakota State University for use of their facilities and the services provided in support of these studies. The report is not intended for publication and should not be referenced in either literature citations or quoted in publicity and advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

^{2/} Research Food Technologist and Physical Science Technicians, USDA/ARS Hard Red Spring & Durum Wheat Quality Laboratory, NDSU, Fargo, ND.

^{3/} Food Technologist, Dept. of Cereal Science, NDSU, Fargo, ND.

TABLE OF CONTENTS

<u>CONTENTS</u>	<u>PAGE NUMBER</u>
Introduction	1
Source of 1997 Hard Red Spring Wheat	2
Map of Spring Wheat Growing Locations (URN)	3
Methods	4-6
Experimental Results - 1997 Crop	7
Uniform Regional Nursery Entries	8
Reference Mixogram Patterns	9
Discussion	10-11
Tables 1-74	

LIST OF TABLES

NURSERY

TABLE

Uniform Regional Nursery –

Carrington, ND	1
Crookston, MN	2
Langdon, ND	3
Minot, ND	4
Brookings, SD	5
Groton, SD	6
Morris, MN	7
St. Paul, MN	8
Dickinson, ND	9
Sidney, MT (rep 1 & 2)	10
Williston, ND	11
Bozeman, MT	12
Havre, MT (rep 1 & 2)	13
Pullman, WA	14
Northeast Region Averages	
Southeast Region Averages	
Midwest Region Averages	
West Region Averages	

Advanced Nursery -

Brookings, SD	15
Crookston, MN	16
Day County, SD	17

NURSERYTABLE

Advanced Nursery -(continued)

Groton, SD	18
Morris, MN	19
North, MN	20
South, MN	21
St. Paul, MN	22

Field Plots -

Langdon, ND	23
McKenzie County, ND	24
Minot, ND	25
Williston, ND	26

Special Nursery -

Minneapolis, MN	27
St. Paul, MN	28
Crookston, MN	29
St. Paul, MN	30

Preliminary Nursery –

Brookings, SD (PPY)	31
Groton, SD (PPY)	32
Brookings, SD (PYT)	33
Groton, SD (PYT)	34
St. Paul, MN (PY)	35-74

INTRODUCTION

Samples of standard cultivars and experimental lines of hard red spring wheat grown in cooperative experiments in the spring wheat regions of the United States are milled each year in the USDA/ARS Wheat Quality Laboratory. Wheat and the corresponding flours are evaluated for physical and chemical properties and the flours are baked to determine bread characteristics. The purpose of this report is to present quality data on hard red spring wheat from the 1997 crop to cooperators and other interested parties.

The evaluation of wheat quality involves the analysis of kernel characteristics, milling performance, and baking performance. Methods are described on pages 4-6.

SOURCE OF 1997 HARD RED SPRING WHEAT

The cooperating agencies and stations conducting the 1997 spring wheat nursery experiments are published in an annual report by R. H. Busch^{4/}. Tests were performed on 1271 samples that were received from the following 19 stations in five states. Data presented in this report represents the evaluation of spring wheat from Advanced, Field Plot, Special, Preliminary, and Uniform Regional Nurseries (URN). The map on page 3 shows the URN stations. Three hundred twenty-two additional wheat samples were evaluated for milling and baking characteristics and were not included in this report.

Minnesota Agricultural Experiment Station

Crookston, Minneapolis, Morris, North, St. Paul, South

Montana Agricultural Experiment Station

Bozeman, Havre, Sidney

North Dakota Agricultural Experiment Station

Carrington, Dickinson, Langdon, McKenzie County, Minot, Williston

South Dakota Agricultural Experiment Station

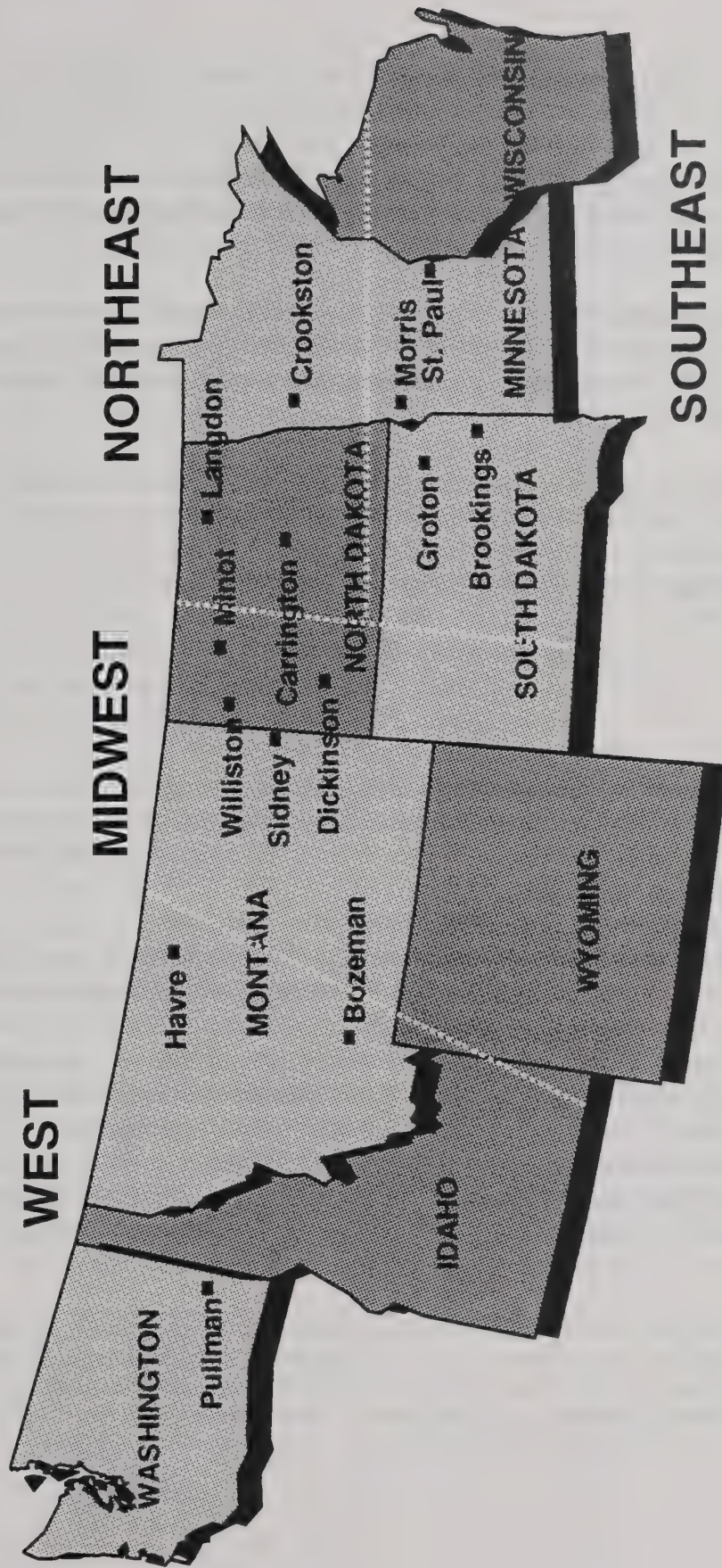
Brookings, Day County, Groton,

Washington Agricultural Experiment Station

Pullman

^{4/} Busch, R. H. Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1997. Agricultural Research Service, U. S. Department of Agriculture and State Agricultural Experiment Station, St. Paul, MN.

Hard Red Spring Wheat Uniform Regional Nurseries 1997 Crop Year



METHODS^{5/}

Test Weight Per Bushel - The weight per Winchester bushel of cleaned, dry wheat subsequent to the removal of dockage using a Carter-Day dockage tester.

1000-Kernel Weight - The weight of 1000 kernels was determined either by a Seedburo seed counter from the number of kernels in 10 g samples of cleaned, hand-picked wheat or by the Single Kernel Characterization System.

Kernel Size - The percentages of the size of kernels (large, medium and small) were determined using a wheat sizer as described by Shuey^{6/}.

The sieves of the sizer were clothed as follows:

Top Sieve - Tyler #7 with 2.92 mm opening
Middle Sieve - Tyler #9 with 2.24 mm opening
Bottom Sieve - Tyler #12 with 1.65 mm opening

Milling - The samples were cleaned by passing the wheat through a Carter-Day dockage tester. The clean samples were pretempered to 12.5% moisture for at least 72 hours, then tempered to 15.5% moisture ca. 16-20 hours before milling.

Samples of wheat from the Uniform Regional, Advanced, Special, and Preliminary nurseries were milled in Brabender Quadrumat Senior mill heads. The stock from the break rolls was sifted for 60 sec on a strand sifter using #35 and #80 Tyler sieves. The throughs of the #80 sieve were classified as break flour; the overs of the #35 sieve were classified as bran; and the overs of the #80 sieve were passed through the reduction section. The reduction stock was sifted for 60 sec on a #80 Tyler sieve. The throughs were classified as reduction flour and the overs as shorts. The break and reduction flours were combined and classified as patent flour.

^{5/} Mention of a trademark name or a proprietary product does not constitute a guarantee or warranty of the product by the U. S. Department of Agriculture, and does not imply its approval to the exclusion of other products that may also be suitable.

^{6/} Shuey, William C. A Wheat Sizing Technique for Predicting Flour Milling Yield. Cereal Science Today 5:71-72,75 (1960).

Wheat from the Field Plots were milled in a Buhler continuous experimental mill. The Buhler mill had been slightly modified for better comparison with commercial milling operations. Break scalping sieves were clothed with #54 stainless steel wire. Reduction scalping sieves were clothed with #58, #66 and #105 stainless steel wire for the first, second and third reductions, respectively. All flour sieves were clothed with #135 stainless steel wire.

The six flour streams from the Buhler mill were combined and classified as patent flour. The extraction of good milling wheat using this flow is approximately 68% and is comparable to commercial long patent flour. At a 68% flour extraction, changes in flour ash are most sensitive to changes in percent extraction.

Hardness Test - Wheat hardness scores were determined according to AACC Method 39-70A (1995). The procedure involved grinding the wheat samples in a Udy grinder and obtaining reflectance data from a Technicon 450 near infrared analyzer. Wavelengths at 1680 nm and 2230 nm were used. Hard red spring wheat kernels generally have NIR scores between 60 and 85.

Protein Content - Wheat and flour proteins were determined either by NIR reflectance or by the combustion method (AACC Method 46-30, 1995). Nitrogen values were multiplied by 5.7 to calculate protein values, which were reported on a 14%mb.

Mineral or Ash Content - Wheat or flour ash was determined by measuring the residual weight of minerals remaining after incinerating the sample for approximately 16 hours at 575°C. The results were reported as percentages of the sample weights. Values were reported on a 14%mb.

Mixograph Analysis - Mixograph scores were determined from 30 g of flour (as is mb) and 20 cc of water. The sensitivity spring setting was set at 10. Water absorption was adjusted according to the peak height of the mixogram. Reference mixogram patterns (page 9) illustrate different dough characteristics. Arbitrary numbers are assigned to mixograms to simplify the classification. The larger numbers indicate stronger gluten characteristics of the dough.

Baking Formula and Procedure

100% flour	3% Non-fat Dry Milk
2% salt	1% instant dry yeast
5% sugar	2% shortening (Crisco, melted) - 100 g loaves
	1% shortening (Crisco, melted) - 25 g loaves

Flour was mixed to optimum dough development in National Manufacturing mixers: the micro mixer for 25 g samples and the 100 g mixer for 100 g samples. Ascorbic Acid (40 ppm) for oxidation and Fungal Amylase (Doh-Tone)(15SKB units) for enzymatic supplement were added to each sample. Dough was moulded in a Roll-Er-Up moulder. Samples undergo 3 hour fermentation, 1 hour proof, and a 20 minute bake time at 220⁰ C.

Absorption - The amount of water, expressed as percent of flour, required for optimum dough consistency.

Dough Characteristics (DC) - Empirical scores ranging from 0-6 were used to classify dough as sticky-weak (0), pliable (2), elastic (3), or bucky (6). Dough should exhibit good elastic/extensible properties for optimum handling and machining.

Crumb Color (CC) - Determined by comparing the internal crumb color of the sample bread with the crumb color of a baking standard. The standard flour was an equal blend of the variety Grandin grown at Minot, ND and Brookings, SD. Empirical scores ranging from 0-6 were used to classify crumb color as yellow (0), gray (2), dull (3), creamy (5), or bright white (6).

Crumb Grain (CG) - Empirical scores ranging from 0-6 were used to classify crumb grain as irregular, thick (0), open, thick (3), or fine (6).

Crumb Texture (CT) - Empirical scores ranging from 0-6 were used to classify crumb texture as harsh (0), coarse (3), or silky (6).

Loaf Volume - The volume (cc) of the baked loaf was determined by rapeseed displacement.

EXPERIMENTAL RESULTS - 1997 CROP

UNIFORM REGIONAL NURSERY (URN) TRIALS

Spring wheat cultivars and experimental lines included in the URN entries are listed on page 8.

A total of 544 URN samples (Tables 1-14) were received from 14 stations in 5 states. Twenty-nine selections were experimental lines. Commercial cultivars included Butte 86 (used as the standard for comparison), Chris, Era, Marquis, and Stoa.

ADVANCED YIELD TRIALS - 229 samples from 8 stations, Table 15-22.

FIELD PLOTS - 39 samples from 4 stations, Table 23-26.

SPECIAL NURSERIES - 167 samples from 3 stations, Table 27-30.

PRELIMINARY YIELD TRIALS - 292 samples from 3 stations, Table 31-74.

1997 UNIFORM REGIONAL HARD RED SPRING WHEAT PERFORMANCE NURSERY

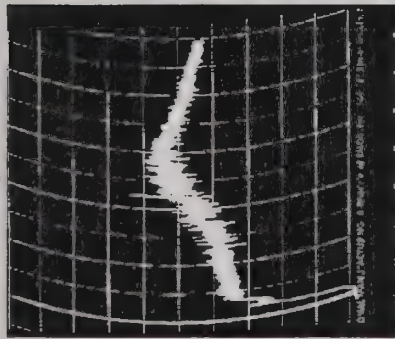
List of Entries

Entry No.	Entry	CI No. or Pedigree	Year Entered	Source
1.	Marquis	3651	1929	CAN
2.	Chris	13751	1969	MN
3.	Era	13986	1972	MN
4.	Stoa		1987	ND
5.	Butte 86		1987	ND
6.	SD3249	SD3080/Dalen	1996	SD
7.	SD8108	SD8061/SD3118	1996	SD
8.	SD3219	SD3078/Grandin	1996	SD
9.	SD8119	SD8072/SD3105	1997	SD
10.	SD3310	SD8072/SD3067	1997	SD
11.	MN93413	Ning 8331/MN87029//MN89068	1996	MN
12.	SBE0050	W8814/Norak	1995	MN
13.	MN94200	MN89028/Grandin	1997	MN
14.	MN94055	BR 23 (Brazil) / MN90071	1997	MN
15.	SBF0402	Erik/SBY0430A	1995	NDRF
16.	ND691	Stoa*2/Carifen//Amidon	1996	ND
17.	ND694	KEENE/ND674	1996	ND
18.	ND695	IAS20*4/H567.71//Stoa/3/ND674	1996	ND
19.	ND704	Grandin*2//Colonias/Amidon	1997	ND
20.	MT9433	MT8808/Marberg	1996	MT
21.	MT9508	Fortuna/Pondera//Pondera	1997	MT
22.	B91-0228	BPC'S'/Junin//B.Chme	1997	AGRIP
23.	N93-0119	N88-0436/Dalen	1997	AGRIP
24.	N93-0136	C84-0057/W87-0069//Bergen	1997	AGRIP
25.	N93-0211	N86-1076/Dalen	1997	AGRIP
26.	Sharpshooter	Sharp/Sumai#3	1996	WPB
27.	BZ 987-331		1997	WPB
28.	T801.93	Chilero/Bom	1996	TRI
29.	T1052	Victoria INTA//Junin/Buck Pucara Sib	1997	TRI
30.	NX95-5106		1997	HYB
31.	SDM50005	VANCE/SUNSTAR1	1996	SUN
32.	WA7802	HF820049/WA007301//Tecumseh/ K8405055	1997	WA
33.	TX92U2317	Agatha*4/Yecora 70//TX81V6603	1997	TX
34.	BW693		1997	SASK

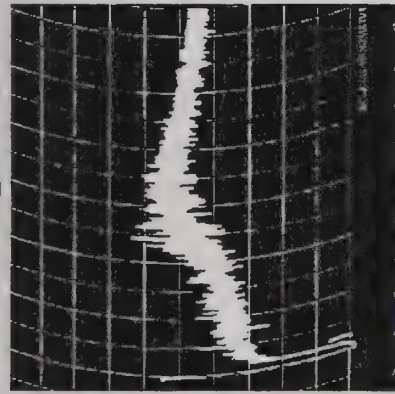
* Solid stem lines for sawfly resistance,

Reference Mixograms

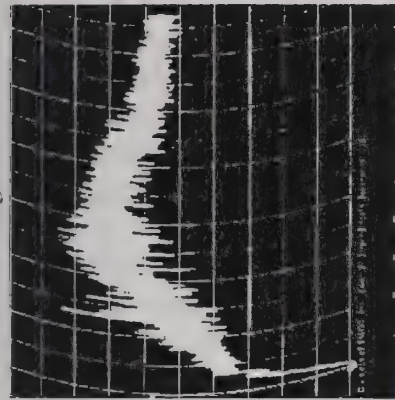
1



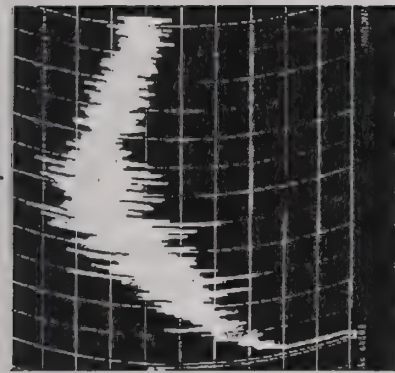
2



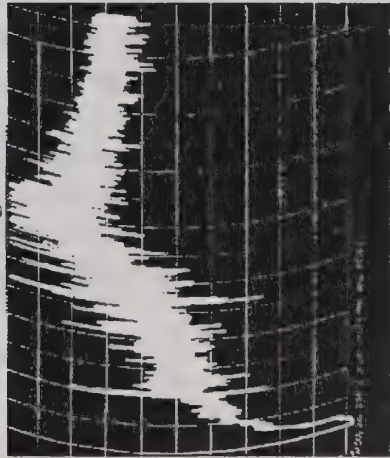
3



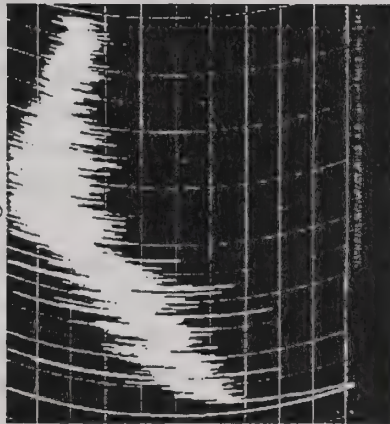
4



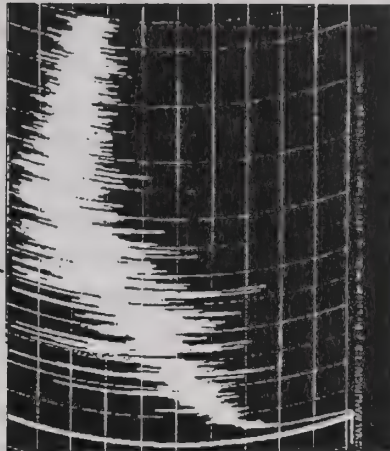
5



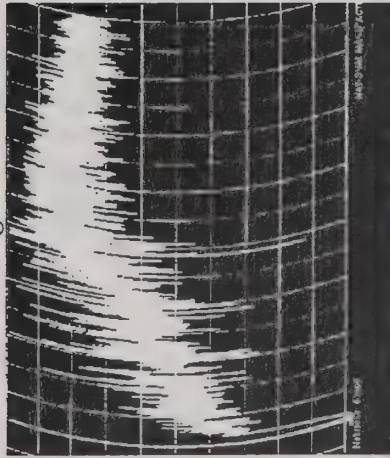
6



7



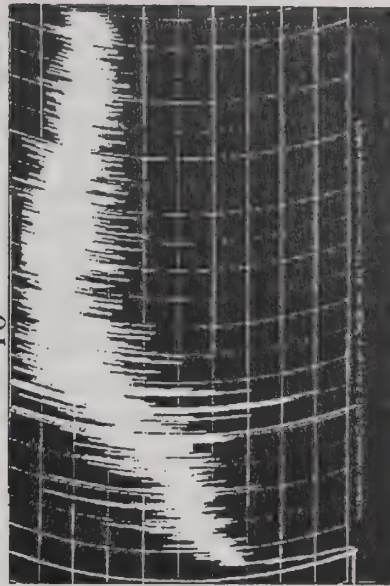
8



9



10



DISCUSSION

The following discussion presents the basic techniques and criteria used in the quality evaluation of the Hard Red Spring Wheat cultivars.

For the Uniform Regional Nursery samples, each quality variable (except for mix time) per wheat variety or experimental line was averaged within each hard red spring wheat region (Northeast, Southeast, Midwest, and West). Values that are bolded/underlined indicate that averages are higher than the standard cultivar, Butte 86. For wheat and flour ash, bolded/underlined values are lower than the standard cultivar since high ash content is a negative factor affecting flour color.

All samples were compared with a milling and baking standard representative of the crop year. Environmental conditions within a growing location can affect the agronomic factors of the wheat, and subsequently the milling and baking factors. A wheat cultivar may be low in protein content because of the environmental growing conditions, but may contain large plump kernels with good milling characteristics. Wheat grown in one environment may exhibit weak gluten characteristics that are inconsistent with the same cultivar grown in another environment. Preferably, a commercial cultivar of wheat should have tolerance (protein stability) to a wide range of environmental conditions.

Kernel Characteristics are important for determining the initial value of wheat. Poor kernel characteristics could disqualify an experimental line from further consideration in a breeding program. High test weight is an indicator of grain soundness. Plump kernels are desirable because of the high ratio of endosperm to bran. Low 1000-kernel weight and small kernel size distribution affect milling performance and flour yield. High wheat ash affects the ash content of the flour. Wheat protein quality and quantity are important characteristics when comparing cultivars that are grown at the same location. Low protein wheat impacts bread baking performance.

Milling Performance is an important characteristic of spring wheat. Low extraction and high flour ash are major factors that are unacceptable in commercial milling operations. As a general rule, an increase of 0.01% in flour ash content is equivalent to an increase of approximately 2% in flour extraction.

Milling Characteristics: Different milling techniques are required for hard and soft wheat. Each type of wheat requires different roll pressure, clothing, sifter surface, and tempering to be milled properly. Blending wheat with different hardness characteristics is undesirable and impacts the milling operation. Adjustments would either have to be made in the mill flow or in the tempering procedure to compensate for differences in kernel hardness. During the milling operation, the amount of flour protein recovered from wheat is important. High protein wheat yielding low protein flour is undesirable.

Mixogram Patterns are important for estimating the strength and potential mixing tolerance of flour. From the reference mixogram patterns (page 9), patterns 4 - 8 indicate flours with optimum mixing tolerance and gluten strength. Mixogram patterns 9 - 10 indicate flours with long mixing times, and strong gluten characteristics, whereas, patterns 1 - 3 indicate flours with weak gluten characteristics and short mixing times. Both the pattern and length of the curve should be considered in the evaluation. Abnormal curves, such as sway-back or long initial times to incorporate water, indicate undesirable characteristics.

Baking evaluation takes into account flour water absorption, mixing time, dough characteristics, loaf volume, crumb texture, and machinability. Flour with low water absorption is undesirable. Flour with a short mix time is undesirable and exhibits weak gluten characteristics.

The crumb grain or appearance of the interior of the loaf indicates the structural integrity during baking. Crumb grain is likely related to gluten protein properties (quantity and quality).

Bread loaf volume indicates the potential strength of dough. Optimum loaf volume demonstrates the capacity or lack thereof, for the dough to expand under pressure and to contain the entrapped gases during expansion. Weak dough tends to collapse and yields bread with low loaf volume or yields bread with large volume containing large holes in the interior. Low protein flour produces dough with undesirable elasticity and extensibility to expand adequately during fermentation or baking and thus yields bread with low loaf volume. Tough or bucky dough is bound too tightly for adequate expansion of the gases, which results in bread with low loaf volume. Loaf volume is a characteristic that is likely related to gluten functionality.

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 1

LOCATION: <i>Carrington, ND</i>										FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)		
					A	B	C		D	INDEX	PRO	ASH (14% mb)	EXT (%)	PRO									ASH (14% mb)	
Marquis	59.8	28.9	52	3	1	10	34	55	66.1	65	14.1	1.85	59.5	12.9	0.46	55.8	2	55.8	3.75	2	3	3	6	178
Chris	59.6	26.8	56	4	2	7	23	68	70.6	69	14.8	1.79	66.4	14.1	0.44	56.5	2	56.5	3.25	3	3	3	6	186
Era	57.5	26.4	46	4	3	6	24	67	66.8	67	13.4	1.76	62.5	12.0	0.43	51.6	2	51.6	3.50	2	5	3	5	179
Stoa	58.0	27.4	47	6	2	5	16	77	72.6	65	14.4	1.90	59.1	13.6	0.40	57.3	3	57.3	3.75	3	5	4	6	201
Butte 86	59.4	32.1	68	2	10	27	29	34	55.0	52	14.5	1.84	57.0	14.1	0.41	57.6	3	57.6	3.75	3	4	3	5	196
SD3249	62.6	28.8	54	4	4	11	30	55	63.8	60	14.1	1.88	60.4	13.5	0.39	56.9	3	56.9	4.00	2	4	4	6	185
SD8108	62.0	29.5	62	2	4	17	35	44	61.4	60	14.1	1.80	55.1	13.1	0.38	55.5	3	55.5	4.25	3	4	4	6	183
SD3219	60.6	28.5	64	2	1	3	22	74	74.6	66	14.1	1.76	60.6	13.1	0.40	59.3	4	59.3	3.25	3	3	4	6	192
SD8119	60.1	30.9	57	1	2	7	27	64	65.3	76	14.3	1.83	61.1	13.0	0.42	57.6	3	57.6	3.50	3	3	5	5	187
SD3310	59.0	29.2	49	3	3	12	30	55	63.4	63	15.2	1.81	59.6	14.7	0.40	59.0	2	59.0	3.00	3	3	5	6	208
MN93413	58.3	27.6	47	3	4	11	30	55	63.0	56	13.9	1.76	53.1	13.1	0.43	55.5	3	55.5	5.50	3	3	3	5	187
SBE0050	59.0	30.8	56	4	3	19	40	38	58.9	64	13.8	1.78	58.3	12.8	0.44	54.3	2	54.3	4.00	3	4	3	5	188
MN94200	60.1	32.9	59	2	8	28	35	29	51.7	51	14.4	1.86	53.8	14.0	0.40	56.5	2	56.5	3.25	2	5	3	5	182
MN94055	59.9	30.0	58	3	5	15	27	53	62.4	62	13.6	1.70	54.5	13.1	0.41	52.2	2	52.2	3.25	3	4	5	5	188
SBF0402	59.3	29.5	56	4	3	9	32	56	65.5	61	13.2	1.70	55.7	12.3	0.41	55.0	2	55.0	4.00	2	3	3	5	203
ND691	59.0	26.8	30	6	2	4	23	71	70.0	64	13.6	1.72	53.2	13.0	0.42	55.8	3	55.8	4.50	3	3	3	6	198
ND694	59.8	30.2	66	4	5	22	35	38	56.8	53	13.9	1.78	56.0	13.2	0.38	55.8	3	55.8	4.50	3	3	3	5	184
ND695	59.1	29.8	57	3	3	10	30	57	65.6	62	14.6	1.67	57.9	13.8	0.40	55.5	2	55.5	3.75	3	3	3	6	208
ND704	60.8	29.8	69	2	0	7	26	67	68.8	75	14.5	1.67	63.4	14.0	0.38	57.9	3	57.9	4.00	3	3	3	6	196
MT9433	58.4	28.9	51	3	3	6	23	68	72.1	76	14.9	1.80	61.3	13.9	0.43	58.6	3	58.6	3.50	3	3	5	6	198

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 1 (cont)

FARGO, ND

LOCATION: *Carrington, ND*

LOCATION: Carrington, ND																										
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	Rating					LOAF VOL (cc)
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)						C	C	C	G	T	
MT9508	59.9	30.5	50	5	10	23	29	38	54.9	54	14.5	1.80	55.7	13.9	0.38	56.9	2	56.9	3.25	3	6	5	6	6	201	
B91-0228	59.4	28.4	42	3	2	6	26	66	69.6	64	14.8	1.88	53.5	14.1	0.43	57.3	3	57.3	4.00	2	5	3	6	6	195	
N93-0119	59.8	29.8	73	3	1	1	15	83	84.1	86	14.7	1.72	54.4	13.2	0.42	56.9	2	56.9	3.00	2	3	3	6	6	186	
N93-0136	58.0	28.9	54	3	3	14	33	50	63.0	59	13.9	1.89	55.3	12.8	0.40	52.9	2	52.9	4.00	2	3	3	5	5	181	
N93-0211	58.0	27.8	47	5	6	16	25	53	63.0	64	14.7	1.85	54.0	13.9	0.41	56.5	3	56.5	3.00	3	5	5	6	6	192	
Sharpshooter	60.1	28.1	56	4	4	15	31	50	62.3	61	14.0	1.74	52.8	13.8	0.37	57.3	3	57.3	3.00	3	3	5	6	6	191	
BZ987-331	57.1	27.4	47	4	3	7	23	67	66.5	64	14.6	1.94	50.2	14.1	0.43	57.6	3	57.6	3.50	3	3	3	6	6	202	
T801-93	56.9	30.8	44	4	3	13	35	49	60.0	59	14.0	1.79	48.4	12.9	0.49	57.6	3	57.6	3.50	3	4	3	6	6	196	
T1052	57.1	28.3	47	4	4	9	27	60	68.2	74	14.2	1.77	51.2	13.3	0.44	57.9	3	57.9	3.50	3	3	3	6	6	201	
NX95-5106	57.9	28.6	41	4	7	16	33	44	58.6	59	14.8	1.88	46.9	14.6	0.44	58.2	3	58.2	3.00	3	5	3	6	6	202	
SDM50005	56.6	28.0	47	4	6	18	29	47	59.1	57	14.3	1.97	44.2	14.0	0.42	57.9	2	57.9	3.25	3	3	3	6	6	190	
WA7802	56.2	28.7	43	5	3	16	32	49	59.2	61	14.2	1.78	50.5	13.9	0.41	57.3	3	57.3	4.00	3	4	4	6	6	187	
TX92U2317	57.0	31.2	49	4	3	10	33	54	62.6	63	13.8	1.82	44.0	12.9	0.47	57.6	3	57.6	4.00	3	4	4	6	6	188	
BW693	56.1	30.4	63	2	10	24	32	34	54.1	55	14.6	1.83	40.9	14.4	0.43	60.5	4	60.5	3.50	3	3	5	6	6	191	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

FINE

SILKY

0 3 6

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 2

LOCATION: Crookston, MN															FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS					NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	-----Rating-----					LOAF VOL (cc)			
					DISTRIBUTION			PRO	ASH (14% mb)		PRO	ASH (14 % mb)		C	C						C	G	T						
					A	B	C																	D	INDEX				
Marquis	56.5	26.5	54	5	2	9	26	63	65.5	60	14.7	1.98	40.5	14.0	0.57	58.2	3	58.2	3.00	3	3	3	3	5	192				
Chris	57.3	26.5	59	5	4	8	26	62	65.5	69	15.3	1.90	49.5	15.2	0.46	59.3	3	59.3	3.00	3	3	3	3	5	195				
Era	57.4	26.2	37	8	3	10	24	63	64.5	60	13.8	1.81	60.6	12.9	0.47	56.2	2	54.4	3.50	2	3	5	5	5	189				
Stoa	56.6	29.3	48	6	3	8	26	63	63.8	70	15.5	1.86	54.9	14.8	0.41	61.1	4	59.2	3.25	3	3	5	5	6	195				
Butte 86	57.8	30.3	68	6	2	6	27	65	65.3	72	15.1	1.73	60.5	13.8	0.41	59.3	2	57.1	3.00	3	3	3	3	5	196				
SD3249	61.0	29.3	64	3	2	13	33	52	63.1	65	15.3	1.75	59.5	14.2	0.37	59.3	3	55.3	4.00	3	3	3	3	5	208				
SD8108	57.4	28.7	54	6	6	20	37	37	55.1	56	14.4	1.78	60.0	13.5	0.38	57.6	3	53.4	5.25	3	3	3	3	5	194				
SD3219	60.9	30.6	67	3	1	7	27	65	63.7	67	14.1	1.72	62.9	12.9	0.43	55.3	2	53.0	5.50	2	3	3	3	5	185				
SD8119	56.8	30.2	69	2	1	4	30	65	64.4	76	14.7	1.83	61.0	13.9	0.46	59.6	3	57.5	3.25	3	3	5	5	5	203				
SD3310	60.5	30.7	74	2	8	26	39	27	52.2	58	14.7	1.67	60.1	14.4	0.38	58.6	3	57.9	3.00	2	3	5	5	5	186				
MN93413	57.9	32.3	68	3	1	7	33	59	64.3	83	13.2	1.72	57.9	11.8	0.48	56.5	2	54.5	3.50	2	3	3	3	5	188				
SBE0050	58.9	29.5	49	4	1	7	30	62	64.5	66	14.3	1.81	57.2	13.5	0.48	57.6	3	55.4	4.50	3	5	4	5	5	206				
MN94200	58.2	26.5	51	6	1	4	15	80	74.3	76	14.1	1.75	56.3	13.2	0.42	56.9	2	54.6	4.00	3	3	3	3	5	200				
MN94055	59.1	32.4	68	3	4	15	35	46	59.3	54	14.2	1.67	50.9	13.4	0.39	55.0	2	53.1	3.00	2	1	5	5	5	180				
SBF0402	58.6	31.2	71	2	6	30	32	32	53.3	61	15.6	1.74	52.6	14.8	0.36	56.9	3	54.6	5.00	3	5	4	5	5	192				
ND691	58.6	27.5	51	4	1	2	12	85	80.5	84	14.9	1.68	63.6	14.2	0.42	59.6	4	57.5	4.50	3	3	3	3	6	210				
ND694	61.0	29.7	72	2	0	5	24	71	69.0	72	16.1	1.79	61.9	15.0	0.38	59.3	3	57.1	3.25	3	5	3	3	6	195				
ND695	58.7	30.3	47	3	2	10	28	60	65.7	62	15.6	1.78	60.6	15.3	0.38	58.6	3	56.9	3.00	3	3	3	3	6	190				
ND704	58.6	28.1	61	4	2	5	22	71	67.0	72	14.7	1.75	63.4	13.7	0.37	56.9	3	54.6	4.25	3	1	3	4	4	187				
MT9433	57.3	27.5	48	8	1	3	13	83	73.4	82	15.3	1.99	59.0	14.0	0.48	58.2	3	56.2	3.00	3	3	3	3	6	192				

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 2 (cont)

FARGO, ND

LOCATION: Crookston, MN

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)	FLOUR (14% mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C C C C -----Rating-----					LOAF VOL (cc)
					A	B	C	D		PRO	ASH		PRO	ASH										
MT9508	55.3	28.0	22	12	12	25	32	31	53.1	41	14.0	1.78	13.8	0.41	56.9	2	54.6	2.50	2	3	5	5	5	202
B91-0228	59.5	29.1	42	7	1	4	19	76	70.0	77	14.4	2.01	13.3	0.45	57.3	3	55.0	6.00	3	3	3	6	6	202
N93-0119	56.8	28.0	41	8	1	4	17	78	72.4	80	15.3	2.02	14.0	0.50	58.6	3	56.7	4.00	3	4	3	6	6	201
N93-0136	60.5	29.5	65	3	3	12	34	51	60.9	62	13.5	1.75	12.5	0.43	53.8	2	52.0	4.00	2	1	3	5	5	175
N93-0211	59.1	28.6	59	2	2	9	21	68	68.1	64	15.1	1.85	13.9	0.42	57.3	3	55.0	4.00	3	3	5	5	5	203
Sharpshooter	61.2	31.0	46	3	7	29	36	28	52.8	57	14.5	1.62	14.2	0.37	57.3	2	55.0	2.50	2	3	3	4	4	185
BZ987-331	50.9	29.2	51	6	17	30	32	21	48.2	28	14.0	2.00	13.3	0.53	59.0	3	57.2	5.00	3	1	3	6	6	213
T80193	55.1	33.0	63	4	3	12	34	51	59.6	63	14.6	2.00	13.4	0.61	59.3	4	57.2	5.00	3	3	3	6	6	210
T1052	60.1	31.1	49	4	5	16	35	44	56.5	61	15.2	1.91	14.5	0.45	56.9	3	54.6	6.00	2	5	3	6	6	188
NX95-5106	55.9	29.8	54	4	5	12	35	48	60.2	52	14.6	1.88	14.2	0.47	56.9	3	54.6	6.25	3	4	4	6	6	207
SDM50005	56.6	28.1	49	7	9	22	34	35	54.2	49	14.1	1.79	13.8	0.43	55.5	2	53.5	3.50	2	4	3	5	5	178
WA7802	53.4	28.8	48	5	8	23	36	33	54.4	49	14.2	1.92	13.5	0.46	55.6	3	53.5	4.00	2	4	3	6	6	189
TX92U2317	56.2	27.6	34	7	1	5	24	70	65.4	63	13.3	1.76	12.1	0.46	53.8	2	52.0	4.50	2	3	5	6	6	187
BW693	57.2	31.5	74	4	7	27	37	29	52.8	74	15.2	1.77	14.7	0.42	57.9	3	55.8	2.25	3	4	3	6	6	196

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK
YELLOWIRREG, THICK
HARSH

PLIABLE

GREY

ELASTIC

DULL
OPEN, THICK
COARSE

3

6

BUCKY

BRIGHT WHITE
FINE
SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 3

LOCATION: Langdon, ND															FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS					NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	T	VOL (cc)						
					DISTRIBUTION			PRO	ASH (14% mb)		EXT (%)	PRO	ASH (14 % mb)																
					A	B	C							D										INDEX					
Marquis	58.7	33.2	82	1	6	25	35	34	54.7	71	14.3	1.84	51.6	13.5	0.46	55.5	2	55.5	3.00	2	4	5	4	185					
Chris	56.6	27.3	61	2	3	18	29	50	60.0	68	15.1	1.72	44.6	14.9	0.41	56.9	3	56.9	2.75	2	4	5	4	187					
Era	55.9	24.9	41	5	2	3	18	77	71.1	71	13.7	1.85	57.0	12.8	0.46	54.6	2	54.6	3.50	2	4	5	4	191					
Stoa	55.8	29.3	56	4	1	6	27	66	67.9	68	15.0	1.80	61.2	14.6	0.43	59.6	3	59.6	3.50	3	4	3	5	198					
Butte 86	57.4	33.1	75	3	5	15	38	42	58.8	67	14.8	1.70	52.6	14.7	0.39	59.6	3	59.6	3.00	3	4	5	5	206					
SD3249	60.9	31.2	71	1	5	16	34	45	61.2	60	14.7	1.63	60.1	14.3	0.38	60.0	4	57.9	4.50	3	4	5	5	213					
SD8108	59.5	31.1	74	4	7	24	33	36	57.1	55	14.2	1.60	43.9	14.0	0.38	58.6	4	56.6	5.00	3	4	4	4	208					
SD3219	59.4	29.9	64	3	1	5	20	74	70.6	60	14.0	1.79	41.4	13.4	0.42	58.6	3	56.6	4.00	3	3	4	5	198					
SD8119	57.8	31.5	79	1	2	11	37	50	62.0	79	14.6	1.71	49.5	14.5	0.42	59.6	3	57.4	3.50	3	3	4	5	206					
SD3310	59.7	31.4	78	1	15	29	25	31	53.4	43	15.3	1.77	58.7	15.0	0.35	59.6	3	57.4	3.00	3	3	5	5	215					
MN93413	62.4	34.3	70	1	2	18	42	38	58.2	69	12.9	1.63	59.5	11.6	0.43	56.9	2	54.6	3.00	2	3	3	5	187					
SBE0050	58.2	28.9	48	3	3	5	22	70	66.7	58	14.0	1.81	63.4	13.1	0.47	58.6	3	56.8	4.25	3	3	3	4	211					
MN94200	56.6	26.5	52	3	1	4	15	80	72.5	67	13.8	1.60	56.7	12.9	0.46	60.3	4	58.3	3.50	3	4	3	5	196					
MN94055	58.2	32.2	71	1	5	15	33	47	61.6	54	13.7	1.66	50.9	13.0	0.41	57.6	2	55.4	2.00	2	1	3	3	175					
SBF0402	59.0	33.6	67	2	6	23	31	40	58.9	66	15.4	1.56	58.4	15.2	0.36	59.0	4	57.2	4.75	2	3	3	4	194					
ND691	55.7	27.7	58	2	1	3	11	85	77.4	65	14.2	1.54	52.5	13.5	0.43	57.9	3	53.9	5.00	3	3	5	4	178					
ND694	59.8	30.9	80	1	0	5	18	77	76.2	66	15.4	1.69	57.0	14.9	0.35	57.9	3	56.1	3.50	3	5	3	5	203					
ND696	58.2	29.4	68	2	2	12	26	60	69.0	61	15.3	1.71	56.5	14.9	0.37	59.0	3	57.2	3.00	2	1	3	5	180					
ND704	59.8	30.9	69	1	2	9	28	61	66.9	67	14.4	1.62	59.4	14.0	0.37	57.3	3	55.3	3.50	2	3	3	4	176					
MT9433	55.7	29.1	57	4	4	6	20	70	71.8	65	14.2	1.83	57.9	13.2	0.46	56.9	2	54.6	2.50	2	3	3	4	176					

LOCATION: *Langdon, ND*

FARGO, ND

Table 3 (cont)

LOCATION: Langaoh, ND																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR		WHEAT		FLOUR		FLOUR		MIX ABS	BAKE ABS	MIX PAT	TIME (min)	D C	C G	C T	LOAF VOL (cc)
					DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	FLOUR											
					A	B	C	D					INDEX	PRO	ASH (14 % mb)									
MT9508	55.3	28.4	28	6	13	25	27	35	54.5	34	14.1	1.85	47.9	13.9	0.41	59.0	2	57.1	2.00	2	4	3	4	188
B91-0228	59.1	31.7	58	3	2	8	27	63	65.5	63	14.6	1.85	53.0	13.6	0.45	58.6	3	56.7	4.50	3	5	3	5	214
N93-0119	60.7	30.4	73	1	1	3	15	81	78.3	80	14.7	1.79	56.3	13.4	0.44	58.6	2	56.7	3.00	2	1	4	5	190
N93-0136	57.4	29.6	69	1	4	9	26	61	66.1	62	12.8	1.67	60.1	12.0	0.42	54.3	2	52.3	3.00	2	1	3	4	182
N93-0211	56.6	25.4	42	5	1	7	12	80	79.8	54	14.9	1.68	53.3	13.9	0.44	57.6	2	55.3	3.25	3	3	3	5	200
Sharpshoote	60.5	30.9	74	4	5	27	33	35	56.5	61	14.2	1.68	54.2	14.1	0.38	57.9	2	55.8	3.00	2	3	4	5	192
BZ987-331	51.7	29.2	52	4	18	30	30	22	49.0	28	14.6	1.81	43.1	14.1	0.49	59.3	4	57.1	5.50	3	4	4	4	205
T801.93	53.4	31.2	57	2	6	12	22	60	62.4	57	14.5	2.03	50.0	13.2	0.66	59.6	3	57.7	4.00	3	3	3	4	204
T1052	57.2	33.8	68	2	4	20	37	39	59.3	56	15.3	1.82	53.5	15.0	0.41	59.0	3	57.1	4.50	3	3	3	5	203
NX95-5106	53.6	28.0	50	3	4	14	29	53	62.0	39	13.8	1.83	46.7	13.2	0.50	58.2	3	56.2	3.50	2	1	3	5	210
SDM50005	56.4	31.3	60	3	17	23	34	26	49.9	52	14.3	1.86	51.2	13.8	0.43	56.2	2	54.5	3.00	2	4	3	1	183
WA7802	53.0	29.9	52	4	7	21	29	43	56.1	46	13.9	1.83	50.2	12.9	0.43	55.8	3	53.9	4.00	3	4	3	4	190
TX92U2317	54.6	31.6	54	4	5	18	36	41	58.0	56	12.9	1.67	52.6	12.3	0.42	55.5	2	53.5	4.00	2	4	3	2	179
BW693	55.9	32.5	70	1	6	27	32	35	57.3	63	15.2	1.82	59.3	14.9	0.46	59.0	2	57.1	3.00	3	4	3	4	211

DISTRIBUTION: A= % Soft

B= % Semi-Soft
C= % Semi-Hard
D= % Hard

RATINGS:

DOUGH CHAR (DC):
CRUMB COLOR (CC):
CRUMB GRAIN (CG):
CRUMB TEXTURE (CT):

	0	3	6
RATINGS:			
DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC
CRUMB COLOR (CC):	YELLOW	GREY	DULL
CRUMB GRAIN (CG):	IRREG, THICK		OPEN, THICK
CRUMB TEXTURE (CT):	HARSH		COARSE
			BUCKY
			CREAMY
			BRIGHT WHITE
			FINE
			SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 4

FARGO, ND																							
LOCATION: <i>Minot, ND</i>																							
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)	
					A	B	C		D	INDEX	PRO	ASH	FLOUR EXT (%)	PRO									ASH
Marquis	59.5	28.8	69	1	1	7	18	74	78.7	71	15.7	1.56	52.3	14.8	0.37	56.9	2	54.6	3.00	3	3	4	203
Chris	58.9	26.4	54	1	1	8	21	70	74.9	68	15.9	1.49	56.8	15.4	0.37	58.6	3	54.6	4.00	3	4	5	224
Era	59.8	28.0	51	3	1	4	28	67	70.6	66	14.6	1.58	56.9	13.5	0.47	56.9	3	52.9	4.50	3	3	5	203
Stoa	57.6	27.3	54	3	2	3	19	76	71.9	66	15.7	1.70	55.7	14.8	0.46	60.5	4	56.2	4.00	3	3	4	200
Butte 86	59.4	32.6	78	0	3	8	28	61	66.1	73	16.4	1.60	55.1	15.4	0.38	60.8	3	56.8	3.00	3	3	4	208
SD3249	62.6	29.4	55	2	4	7	33	56	66.4	62	16.5	1.78	53.7	16.1	0.35	60.8	4	56.8	4.00	3	3	5	213
SD8108	61.1	29.8	56	2	4	20	31	45	61.5	51	15.2	1.65	48.1	14.3	0.32	58.6	4	54.6	5.50	3	5	3	218
SD3219	61.4	28.5	48	2	1	3	15	81	74.6	63	15.7	1.57	57.4	14.0	0.38	58.6	3	54.6	5.00	3	3	4	214
SD8119	59.8	31.2	71	0	3	7	30	60	66.3	67	16.2	1.59	58.8	15.2	0.41	59.0	2	55.1	4.00	3	3	5	205
SD3310	61.9	31.5	72	0	9	27	27	37	58.1	52	16.7	1.52	54.0	16.4	0.32	59.3	2	55.1	3.00	3	3	4	222
MN93413	57.6	29.8	42	5	4	4	26	66	66.0	61	14.4	1.59	52.8	13.0	0.39	57.3	2	53.3	4.50	3	3	4	196
SBE0050	59.9	28.1	34	5	2	4	20	74	68.2	45	15.5	1.56	46.8	14.6	0.36	57.9	3	54.1	5.50	3	5	3	212
MN94200	60.2	27.3	51	2	1	5	19	75	72.4	61	15.1	1.46	52.1	13.7	0.38	58.2	3	54.4	5.00	3	3	4	200
MN94055	60.7	32.0	71	1	8	21	30	41	56.6	44	15.6	1.60	48.6	14.9	0.36	57.6	2	53.6	2.50	3	4	5	193
SBF0402	60.2	30.9	75	1	4	18	29	49	62.9	54	16.3	1.61	58.1	15.8	0.38	60.0	4	56.1	5.50	3	3	5	207
ND691	58.4	28.0	67	2	1	2	15	82	77.3	64	15.5	1.50	55.3	14.4	0.42	59.6	4	55.5	6.00	6	3	5	213
ND694	60.9	27.6	56	1	1	3	21	75	74.1	65	16.7	1.47	55.8	16.1	0.34	59.0	4	55.1	4.00	6	5	3	219
ND695	59.7	29.8	68	1	3	7	35	55	63.2	58	16.1	1.51	53.3	15.1	0.33	59.6	3	55.5	3.50	3	4	5	220
ND704	62.4	30.9	78	1	1	6	28	65	68.8	78	15.9	1.45	58.7	15.3	0.31	59.6	3	55.6	4.00	3	3	5	222
MT9433	60.0	32.6	73	0	1	4	28	67	64.9	82	16.6	1.49	59.4	15.6	0.36	60.8	4	56.6	3.25	3	3	5	210

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 4 (cont)

FARGO, ND

LOCATION: *Minot, ND*

LOCATION: Minot, ND																										
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS		WHEAT PRO (14% mb)		FLOUR EXT (%)		FLOUR PRO (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					A	B	C	D	INDEX		PRO	ASH (14% mb)		PRO	ASH (14 % mb)											
MT9508	59.9	33.3	74	1	17	27	23	33	53.9	47	16.0	1.56	44.7	15.9	0.34	60.8	3		56.6	2.50	3	5	4	5	5	218
B91-0228	61.2	32.8	67	1	2	8	30	60	69.1	66	16.6	1.66	51.2	15.7	0.39	59.3	4		54.5	6.00	6	5	5	4	5	208
N93-0119	61.0	31.4	80	1	1	3	17	79	80.2	86	16.3	1.38	54.2	14.9	0.33	59.0	3		54.5	3.50	3	3	5	4	4	218
N93-0136	60.1	28.4	48	1	3	13	27	57	65.9	56	14.9	1.50	55.7	13.9	0.34	56.2	2		52.4	4.00	3	4	6	4	4	198
N93-0211	60.9	31.2	74	1	3	10	23	64	73.2	65	16.7	1.49	56.1	15.8	0.35	59.3	2		54.5	3.25	3	3	5	4	4	202
Sharpshoote	61.3	32.2	72	2	17	31	25	27	50.6	61	16.4	1.57	54.4	16.3	0.33	59.3	2		54.5	2.50	3	5	3	5	5	218
BZ987-331	58.2	34.8	74	2	14	23	32	31	53.6	40	15.3	1.57	42.7	15.1	0.39	60.3	4		55.6	8.00	3	4	3	4	4	201
T801.93	60.2	40.6	88	0	1	26	35	38	59.8	75	16.2	1.76	49.5	14.9	0.49	62.7	4		58.7	4.50	3	5	3	6	6	230
T1052	60.0	35.6	78	0	6	18	27	49	65.4	72	16.5	1.82	55.6	16.2	0.39	59.6	4		55.6	5.50	6	6	3	5	5	196
NX95-5106	59.0	33.3	74	1	2	9	30	59	68.7	54	15.5	1.58	48.8	14.7	0.39	59.0	4		54.5	6.50	6	3	3	5	5	207
SDM50005	60.5	32.3	71	1	8	22	35	35	56.6	64	16.5	1.72	51.4	16.1	0.42	61.1	3		56.3	3.00	3	3	4	5	5	208
WA7802	58.7	34.7	70	1	9	27	35	29	53.7	51	15.3	1.45	58.7	14.1	0.35	59.6	3		54.5	4.00	6	5	3	4	4	224
TX92U2317	58.4	31.7	67	1	4	15	37	44	60.5	52	15.4	1.56	55.1	14.5	0.42	59.3	3		54.5	4.50	3	5	3	5	5	207
BW693	59.3	30.8	59	1	5	20	26	49	63.3	67	16.4	1.64	59.7	15.7	0.38	60.5	3		55.2	3.00	3	6	3	5	5	217

DISTRIBUTION; A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

FINE

SILKY

6

3

0

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 5

LOCATION: <i>Brookings, SD</i>										FARGO, ND																	
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating-----					LOAF VOL (cc)	
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)						C	C	C	G	T		
Marquis	57.0	27.2	59	7	1	7	21	71	76.4	76	14.4	1.85	52.6	13.5	0.42	52.9	2	50.3	5.00	6	3	3	4	3	4	4	193
Chris	59.4	29.5	69	4	1	8	33	58	70.8	73	15.2	1.81	54.2	14.7	0.40	57.6	2	55.5	4.00	3	3	5	5	3	5	5	198
Era	58.1	28.9	55	9	5	18	27	50	59.4	66	13.6	1.81	55.4	12.4	0.41	55.8	2	54.1	5.00	3	3	3	4	3	4	4	184
Stoa	59.0	30.5	61	5	2	6	29	63	65.9	66	14.1	1.99	50.9	13.5	0.40	57.6	3	54.6	5.25	3	3	3	5	3	5	5	192
Butte 86	60.3	35.4	84	2	1	9	36	54	65.3	83	14.8	1.76	60.5	13.5	0.40	58.2	2	55.0	3.25	2	3	3	5	3	5	5	185
SD3249	62.2	31.4	64	4	2	9	33	56	66.6	72	14.8	1.82	56.5	14.4	0.39	59.0	4	56.5	5.00	6	3	3	6	3	6	6	190
SD8108	61.0	30.8	65	5	5	16	36	43	60.5	54	14.2	1.69	43.7	13.3	0.37	55.5	4	53.6	7.50	6	3	5	4	3	5	4	189
SD3219	61.4	33.0	73	5	1	15	29	55	62.7	77	13.3	1.70	52.8	11.8	0.38	53.8	2	52.8	6.00	2	4	3	5	3	5	5	174
SD8119	59.7	33.4	79	3	1	14	39	46	61.2	80	14.1	1.82	63.3	12.8	0.42	57.6	2	56.5	3.50	3	4	3	5	3	5	5	182
SD3310	62.2	33.9	82	2	8	26	27	39	59.1	54	14.5	1.76	60.6	13.8	0.35	57.6	2	56.5	4.00	3	3	5	5	3	5	5	181
MN93413	56.8	31.5	59	7	3	22	37	38	58.2	70	13.0	1.75	54.0	11.7	0.46	53.8	2	52.2	5.50	2	3	3	4	3	4	4	170
SBE0050	58.2	30.4	48	8	4	16	36	44	60.0	54	13.6	1.76	54.4	12.9	0.41	54.6	3	52.8	8.00	6	3	3	4	3	4	4	183
MN94200	60.6	30.5	65	5	3	4	25	68	69.7	83	13.8	1.66	53.2	12.1	0.42	56.9	3	54.6	5.00	6	5	3	4	3	4	4	182
MN94055	60.5	37.0	81	3	12	31	30	27	52.7	58	14.0	1.70	52.4	13.6	0.39	56.5	2	54.2	3.50	2	4	5	4	4	5	4	192
SBF0402	60.9	35.7	82	3	7	28	37	28	55.1	62	15.1	1.80	67.0	14.0	0.40	57.6	3	55.4	6.00	6	5	3	4	3	4	4	179
ND691	58.7	29.4	61	5	1	2	19	78	70.6	71	13.7	1.70	57.7	12.7	0.41	55.3	3	53.0	7.50	6	4	3	4	3	4	4	182
ND694	61.8	30.5	63	5	1	5	19	75	71.3	68	14.6	1.78	54.2	13.5	0.38	55.3	3	53.0	5.00	3	3	3	4	3	4	4	185
ND695	60.5	31.4	67	3	1	9	34	56	66.2	65	14.5	1.73	55.9	14.0	0.37	56.5	3	54.2	4.00	3	4	3	5	3	5	5	200
ND704	61.1	32.8	74	4	2	17	34	47	63.9	72	14.5	1.74	57.9	13.5	0.37	56.2	3	54.2	5.50	3	3	3	5	3	5	5	201
MT9433	60.2	32.7	72	4	1	9	34	56	65.6	84	14.0	1.74	58.6	13.1	0.41	55.8	3	53.9	4.00	3	5	5	5	3	5	5	205

FARGO, ND

LOCATION: *Brookings, SD*

LOCATION, DROPPING, SD																										
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating				C T	LOAF VOL (cc)
					A	B	C	D		INDEX	ASH	EXT	PRO	ASH	C						C	C	G			
MT9508	58.7	35.6	66	6	12	34	27	27	52.0	55	15.0	1.76	50.0	14.6	0.38	58.2	3	56.2	3.00	3	3	4	5	5	202	
B91-0228	60.3	32.8	54	7	1	7	32	60	65.7	69	14.6	1.90	51.9	13.9	0.45	55.5	3	53.4	8.00	3	5	3	5	5	185	
N93-0119	60.3	31.4	77	2	1	6	29	64	68.8	91	14.2	1.75	55.6	12.4	0.39	58.6	2	56.7	4.00	3	3	3	5	5	188	
N93-0136	60.6	30.9	72	4	6	22	33	39	58.3	65	13.1	1.74	60.5	12.3	0.37	53.8	2	52.4	5.00	6	4	3	4	5	170	
N93-0211	60.6	30.3	68	4	1	7	25	67	73.0	71	14.3	1.81	54.6	13.1	0.39	57.6	2	55.6	3.50	3	3	3	5	5	189	
Sharpshooter	62.3	34.2	79	2	11	30	30	29	53.5	63	14.4	1.74	57.5	13.9	0.35	58.6	3	56.6	3.50	3	3	3	5	5	194	
BZ987-331	57.8	36.7	81	4	18	27	30	25	50.9	42	13.8	1.90	48.4	13.4	0.35	57.6	4	55.6	9.00	6	3	5	4	5	188	
T801.93	60.2	36.8	77	3	2	13	43	42	59.6	72	14.6	1.89	50.2	13.0	0.53	57.6	4	55.1	8.00	6	3	4	5	5	204	
T1052	59.9	35.7	77	3	3	20	38	39	57.7	61	14.8	1.89	51.9	13.9	0.43	55.8	3	53.9	9.00	6	5	3	5	5	171	
NX95-5106	59.4	33.5	75	3	3	16	31	50	62.7	49	14.2	1.77	45.8	13.6	0.39	56.5	4	54.2	7.00	6	3	5	5	5	186	
SDM50006	58.4	32.1	67	5	7	26	43	24	52.8	59	14.1	1.87	54.5	13.7	0.40	58.6	3	56.6	3.00	3	5	3	5	5	203	
WA7802	55.8	31.0	56	8	5	16	35	44	58.5	59	13.9	1.77	47.9	13.0	0.37	57.6	3	55.6	6.25	3	3	3	5	5	192	
TX92U2317	56.0	31.1	43	6	5	16	30	49	59.5	49	13.4	1.81	45.8	12.3	0.46	53.2	2	51.1	7.00	6	5	4	4	4	176	
BW693	56.9	28.6	71	6	3	11	27	59	67.3	70	15.0	1.97	56.5	14.5	0.40	58.6	3	56.6	4.00	3	5	4	5	5	205	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHARG (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

3

PLIABLE

GREY

OPEN, THICK

COARSE

6

BUCKY

BRIGHT WHITE

FINE

SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 6

LOCATION: <i>Groton, SD</i>										FARGO, ND																
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating					LOAF VOL (cc)
					DISTRIBUTION					PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14% mb)	C						C	C	G	T		
					A	B	C	D																	INDEX	
Marquis	53.3	20.2	5	17	1	4	13	82	77.3	60	13.9	1.75	56.5	12.7	0.42	52.6	2	50.5	3.75	2	3	3	3	4	4	182
Chris	57.8	23.5	22	9	2	4	11	83	78.7	73	15.7	1.81	53.3	15.2	0.38	56.9	2	54.7	3.50	3	3	3	3	5	5	200
Era	56.9	23.6	19	12	3	6	11	80	72.5	67	13.6	1.69	54.5	12.5	0.45	55.0	2	53.1	4.00	3	3	3	3	5	5	190
Stoa	59.0	26.7	30	6	2	2	14	82	74.1	66	14.9	1.71	51.2	13.9	0.35	58.2	3	56.2	4.25	3	3	3	3	5	5	202
Butte 86	59.5	30.2	66	2	1	3	14	82	78.5	77	15.3	1.67	53.3	13.8	0.36	58.2	2	56.2	2.75	2	3	3	3	5	5	197
SD3249	62.7	28.7	51	3	2	8	22	68	74.6	67	15.2	1.70	54.2	14.3	0.32	57.6	3	55.1	4.50	3	3	3	3	4	4	206
SD8108	61.4	30.8	76	1	2	12	29	57	69.0	57	14.8	1.68	50.5	13.7	0.33	57.6	3	55.1	4.75	3	3	3	3	4	4	215
SD3219	61.0	29.5	50	3	2	6	25	67	71.9	62	13.6	1.60	53.0	12.0	0.35	52.6	2	50.7	7.50	2	3	3	5	5	5	181
SD8119	59.6	28.7	70	1	0	2	17	81	75.2	72	14.9	1.63	57.7	13.6	0.39	57.3	2	55.1	3.00	3	3	3	3	6	6	194
SD3310	61.8	32.1	78	0	11	22	27	40	60.0	44	15.4	1.62	51.6	14.5	0.30	57.6	2	55.6	3.00	3	4	3	3	5	5	211
MN93413	59.2	26.5	50	8	1	4	18	77	72.5	73	13.7	1.66	57.7	12.2	0.41	55.5	2	53.4	3.25	3	3	3	3	5	5	195
SBE0050	57.9	25.8	21	8	0	6	23	71	67.5	55	14.1	1.67	51.4	13.5	0.41	55.3	2	53.1	6.50	2	5	3	3	4	4	195
MN94200	59.4	28.8	58	3	1	3	18	78	73.7	74	14.2	1.64	54.0	12.7	0.40	55.5	2	53.4	4.50	2	5	3	3	5	5	195
MN94055	59.8	31.4	67	4	1	12	31	56	64.6	57	14.0	1.66	54.0	13.0	0.37	52.2	1	52.2	3.00	1	3	3	3	4	4	179
SBF0402	59.7	31.0	64	3	6	18	33	43	59.4	56	15.3	1.65	55.1	14.5	0.37	57.9	3	55.8	4.50	3	3	3	3	5	5	195
ND691	58.7	25.5	28	6	1	2	8	89	85.0	71	14.6	1.62	55.8	13.2	0.34	57.6	2	55.6	5.50	3	3	3	3	5	5	195
ND694	61.0	27.7	53	2	1	2	16	81	80.0	67	15.4	1.65	52.3	14.7	0.33	58.6	3	56.6	4.50	3	6	3	6	6	6	210
ND695	60.1	29.3	76	1	1	5	21	73	72.6	61	15.2	1.63	54.2	14.3	0.33	56.5	2	54.3	4.00	3	5	3	6	6	6	193
ND704	61.4	30.1	79	2	0	3	17	80	73.0	68	15.0	1.62	58.6	14.0	0.32	56.5	2	54.4	4.00	3	5	4	6	6	6	195
MT9433	57.9	25.7	28	12	0	2	7	91	81.5	80	14.9	1.71	58.1	13.4	0.41	56.5	2	54.4	3.50	3	3	3	3	5	5	189

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 6 (cont)

FARGO, ND

LOCATION: Grotton, SD

LOCATION, GROWN, SD																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)		
					A	B	C		D	INDEX	PRO	ASH (14% mb)	EXT (%)	PRO									ASH (14 % mb)	Rating-----
MT9508	55.9	26.1	10	15	6	19	31	44	59.0	46	15.0	1.71	53.7	14.6	0.38	56.5	2	54.4	3	3	4	230		
B91-0228	60.6	30.6	45	3	2	4	26	68	68.4	81	15.1	1.85	52.1	14.2	0.39	56.2	2	55.2	3	6	3	203		
N93-0119	60.5	29.8	64	3	1	1	9	89	74.6	84	15.0	1.63	56.7	13.0	0.35	55.5	2	54.1	4.00	2	5	3	183	
N93-0136	60.6	26.7	62	2	2	4	24	70	67.6	60	13.5	1.64	57.3	12.2	0.37	51.9	2	50.3	5.00	2	3	2	167	
N93-0211	58.6	24.1	58	6	2	3	13	82	78.2	62	14.8	1.66	57.4	13.6	0.38	57.3	2	57.1	3.50	3	4	3	191	
Sharpshoote	55.3	29.0	70	2	4	13	33	50	62.1	62	15.0	1.53	55.8	14.3	0.33	58.2	2	57.1	2.50	2	5	3	200	
BZ987-331	54.6	29.3	50	2	14	32	33	21	48.2	37	13.6	1.59	45.3	13.0	0.35	56.3	3	54.4	7.00	3	3	3	205	
T801.93	58.7	33.3	52	2	1	5	29	65	63.8	71	14.9	1.83	51.2	13.3	0.46	59.0	3	57.1	6.00	3	3	3	222	
T1052	57.6	30.5	42	4	4	22	38	36	55.4	55	15.3	1.72	53.5	14.6	0.39	57.6	3	55.2	8.00	6	5	3	4	188
NX95-5106	57.7	29.3	53	3	2	11	24	63	64.5	54	14.2	1.68	50.2	13.2	0.40	57.3	2	55.2	5.00	2	3	3	5	211
SDM50005	56.1	25.4	23	10	5	13	29	53	60.4	51	14.5	1.79	49.8	13.8	0.39	57.6	3	55.9	3.50	3	3	3	5	190
WA7802	53.6	25.8	53	6	7	20	35	38	55.1	58	13.8	1.71	53.3	13.0	0.39	58.2	3	56.3	4.50	3	3	5	5	198
TX92U2317	55.8	27.1	14	7	4	14	33	49	58.6	50	13.4	1.63	47.4	12.1	0.45	55.5	2	53.6	4.50	2	2	5	5	191
BW693	49.4	29.9	59	1	4	19	37	40	57.9	62	15.4	1.67	52.1	15.0	0.40	59.3	3	57.1	2.50	3	5	3	6	230

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK
YELLOW
IRREG, THICK
HARSH

PLIABLE

GREY

ELASTIC

DULL
OPEN, THICK
COARSE

3

6

BUCKY
BRIGHT WHITE
FINE
SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 7

LOCATION: <i>Morris, MN</i>		FARGO, ND																			
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					A	B	C		PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14% mb)									
Marquis	56.5	25.5	48	4	1	4	21	74	80.2	58	14.3	1.87	50.9	12.8	0.42	54.6	2	3	5	6	185
Chris	58.6	27.0	54	4	1	3	17	79	86.0	70	16.0	1.75	56.3	14.9	0.39	57.9	3	3	4	4	210
Era	58.2	25.3	35	8	0	3	13	84	78.6	71	14.1	1.85	52.8	12.8	0.40	53.8	2	5	3	5	206
Stoa	57.1	26.3	40	5	1	3	4	92	88.1	69	15.9	1.92	48.6	14.3	0.42	59.0	3	3	5	6	213
Butte 86	59.3	31.2	56	1	1	3	18	78	83.9	73	15.8	1.80	50.5	14.3	0.37	59.0	3	3	4	6	211
SD3249	60.8	27.8	54	3	1	3	13	83	86.7	58	15.5	1.83	46.3	14.5	0.36	57.6	3	3	3	4	210
SD8108	58.8	29.6	60	2	2	15	25	58	69.6	50	14.8	1.82	47.2	13.5	0.34	55.3	2	4	3	5	193
SD3219	59.9	28.4	54	6	1	5	14	80	82.0	61	14.7	1.70	52.3	12.6	0.37	55.0	2	3	3	4	189
SD8119	59.1	31.2	80	1	1	8	20	71	75.2	65	14.9	1.83	54.5	13.1	0.41	59.3	3	3	6	5	197
SD3310	61.6	31.8	76	1	4	15	24	57	73.6	52	15.3	1.68	54.7	14.2	0.32	58.2	2	4	5	6	210
MN93413	55.5	27.3	43	6	0	7	25	68	75.6	73	14.3	1.79	52.8	12.9	0.42	56.2	3	5	3	6	210
SBE0050	57.4	28.2	54	4	1	4	16	79	80.4	69	14.9	1.90	50.5	12.9	0.42	56.9	3	5	3	5	204
MN94200	56.9	27.0	30	7	2	4	16	78	75.8	61	15.3	1.90	51.6	14.2	0.46	57.6	3	5	3	6	225
MN94055	58.4	32.0	78	1	2	12	25	61	70.5	48	15.2	1.77	52.1	14.1	0.42	55.5	1	4	6	5	208
SBF0402	58.7	30.5	72	2	1	9	25	65	70.2	59	16.1	1.96	57.9	15.0	0.41	60.0	4	3	3	6	219
ND691	56.6	25.4	28	7	0	2	6	92	92.1	67	14.9	1.76	56.6	13.3	0.42	59.0	4	3	5	5	202
ND694	60.8	25.8	45	6	0	1	7	92	89.0	71	15.6	1.83	53.3	14.3	0.41	59.3	3	5	5	6	204
ND695	60.1	28.7	67	2	1	5	20	74	77.9	55	15.4	1.87	52.8	13.7	0.37	57.6	3	3	4	5	219
ND704	61.5	31.1	73	3	1	7	25	67	71.9	63	15.3	1.70	55.3	13.8	0.38	59.3	3	3	5	6	225
MT9433	58.7	27.8	52	5	1	4	13	82	76.5	76	15.5	1.78	58.1	13.7	0.43	59.3	3	3	6	4	214

FARGO, ND

LOCATION: Morris, MN

LOCATION, MORRIS, MI																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)									
MT9508	57.8	29.8	31	7	4	16	32	48	64.2	44	14.9	1.79	45.3	14.3	0.38	59.6	3	57.6	2.25	3	5	3	5	239
B91-0228	59.3	31.8	64	4	0	3	22	75	74.8	67	15.7	2.07	51.4	14.1	0.47	57.6	3	55.4	6.00	3	3	4	5	213
N93-0119	59.1	28.9	67	2	1	2	8	89	82.0	79	15.7	1.92	54.2	13.1	0.43	55.8	2	53.9	4.00	2	3	3	5	200
N93-0136	58.4	29.0	66	2	1	8	23	68	70.6	62	14.1	1.78	55.1	12.3	0.38	52.2	2	50.2	5.00	2	5	6	4	180
N93-0211	59.4	26.1	53	2	3	10	17	70	76.9	68	15.1	1.98	55.1	13.3	0.39	57.3	2	55.0	3.75	3	3	3	5	213
Sharpshoote	60.6	31.2	75	1	2	21	28	49	64.5	54	14.7	1.66	56.5	13.5	0.36	57.9	3	56.0	3.00	3	3	3	5	208
BZ987-331	56.5	33.1	74	1	8	28	30	34	55.7	40	14.5	1.93	45.1	13.7	0.41	59.3	4	57.2	7.00	3	3	3	5	200
T801.93	57.8	32.9	71	2	1	5	30	64	66.7	68	15.2	2.08	48.8	13.2	0.54	59.3	3	57.2	4.50	3	5	3	6	225
T1052	59.4	31.8	65	2	13	24	27	36	56.3	58	15.4	2.09	49.1	14.5	0.43	56.5	4	54.1	7.50	6	3	3	6	187
NX95-5106	58.4	32.2	70	1	3	10	27	60	65.7	46	15.0	1.67	49.8	13.9	0.39	58.2	4	56.3	5.25	3	3	3	6	216
SDM50005	57.4	28.5	55	1	6	16	30	48	60.8	51	15.3	1.98	51.2	14.1	0.37	57.3	3	55.0	3.50	3	3	4	4	227
WA7802	55.0	28.4	40	5	2	12	32	54	63.4	53	14.5	1.65	47.4	13.1	0.37	56.2	3	54.1	4.50	3	5	3	6	210
TX92U2317	58.2	32.1	57	2	2	14	31	53	65.4	56	14.8	1.77	50.7	13.4	0.41	56.2	2	54.1	4.00	3	5	3	6	210
BW693	58.5	32.4	74	1	4	15	36	45	59.6	60	15.7	1.74	54.5	14.5	0.40	60.0	3	57.9	2.50	3	5	3	6	227

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK
YELLOW
IRREG, THICK
HARSHPLIABLE
GREYELASTIC
DULL
OPEN, THICK
COARSE

CREAMY

6

BUCKY
BRIGHT WHITE
FINE
SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 8

LOCATION: St. Paul, MN										FARGO, ND															
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating-----				C T	C G	LOAF VOL (cc)
					A	B	C		D	INDEX		PRO	ASH (14% mb)						PRO	ASH (14% mb)	C	C			
Marquis	57.0	28.6	68	3	1	5	22	72	72.3	69	15.6	2.08	43.7	14.5	0.46	57.3	2	55.1	4.00	3	3	3	4	4	195
Chris	57.8	29.3	72	2	7	15	24	54	63.0	74	16.5	1.85	44.9	15.5	0.44	59.3	3	59.3	3.00	3	3	3	3	5	203
Era	58.0	29.2	58	3	1	5	26	68	65.8	74	14.3	1.94	50.0	12.5	0.43	53.2	2	53.2	5.00	6	3	5	4	4	172
Stoa	58.2	30.4	70	2	0	2	14	84	74.4	72	16.0	2.13	47.2	14.7	0.43	58.2	3	58.2	4.25	3	3	3	3	5	206
Butte 86	58.3	32.7	85	1	0	6	22	72	72.0	72	15.3	1.87	49.3	13.4	0.39	57.3	2	57.3	3.50	3	3	4	4	5	187
SD3249	61.0	30.3	66	4	3	8	23	66	69.9	58	15.7	1.84	49.3	14.9	0.37	56.5	3	56.5	4.50	3	3	3	3	5	196
SD8108	59.9	30.3	74	2	8	17	31	44	57.5	50	15.3	1.80	43.7	13.9	0.34	55.8	3	55.8	5.75	3	5	5	5	5	196
SD3219	60.1	30.3	70	3	2	3	19	76	71.2	68	14.9	2.05	49.3	13.2	0.39	53.2	2	53.2	6.50	2	4	6	4	4	172
SD8119	59.4	32.7	85	1	0	4	25	71	67.6	85	15.5	2.02	48.1	14.0	0.41	57.6	3	57.6	3.50	3	3	3	3	4	183
SD3310	60.1	33.1	84	1	6	26	25	43	58.6	44	15.7	1.89	44.5	15.0	0.30	56.5	2	56.5	4.50	3	3	3	3	4	192
MN93413	55.5	30.9	62	4	1	11	26	62	66.6	65	14.5	2.09	48.4	12.4	0.44	56.9	3	56.9	3.50	2	3	6	5	5	181
SBE0050	57.0	30.2	57	4	4	8	33	55	62.8	59	15.0	1.83	44.1	13.8	0.41	57.6	3	57.6	4.50	3	3	3	3	4	190
MN94200	57.2	29.1	61	5	2	4	10	84	76.4	67	14.5	1.97	45.3	12.7	0.44	57.9	3	57.9	4.25	2	3	3	3	5	175
MN94055	58.2	34.1	73	2	7	20	37	36	56.0	49	14.5	1.97	45.1	12.9	0.42	54.6	1	54.6	3.00	2	4	4	4	5	176
SBF0402	58.6	32.9	76	3	6	17	40	37	57.1	61	15.2	1.93	47.2	13.9	0.37	55.0	2	55.0	5.00	3	3	5	5	5	193
ND691	58.0	28.9	64	3	0	1	10	89	77.9	68	15.3	1.80	47.4	14.2	0.38	57.6	3	57.6	6.50	3	3	5	5	5	193
ND694	61.5	32.8	83	1	6	20	27	47	60.0	72	16.2	1.81	48.6	14.7	0.38	57.3	2	58.2	3.75	3	5	3	5	5	198
ND695	59.7	31.4	76	2	2	9	30	59	67.2	73	16.0	1.94	47.7	14.9	0.35	55.3	2	56.5	3.50	3	3	3	3	5	198
ND704	60.6	32.0	79	2	1	4	25	70	68.3	70	15.4	1.77	44.4	14.0	0.38	55.8	2	57.2	5.00	3	3	4	4	4	190
MT9433	59.1	31.4	67	4	1	2	13	84	73.8	88	15.9	2.07	50.0	14.2	0.47	57.9	2	60.1	3.00	3	3	3	3	5	211

LOCATION: *St. Paul, MN*

FARGO, ND

LOCATION: St. Paul, Minn.																													
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	C VOL	LOAF VOL (cc)				
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)														
MT9508	57.1	32.9	45	5	11	27	28	34	57.0	38	14.9	1.98	39.8	14.6	0.40	56.9	2	58.4	3.25	3	3	3	5	5	194				
B91-0228	59.4	32.5	57	4	2	4	19	75	70.6	73	15.0	2.12	44.9	13.5	0.47	56.5	2	57.2	6.50	3	5	3	5	5	186				
N93-0119	58.1	30.2	61	4	0	1	12	87	78.4	83	15.7	1.88	49.1	13.7	0.43	58.2	3	59.3	4.00	3	4	5	5	5	190				
N93-0136	58.8	29.6	66	2	2	5	26	67	64.8	57	13.6	1.86	52.3	12.1	0.39	54.3	2	55.6	4.50	2	4	5	4	5	173				
N93-0211	59.4	29.9	68	2	2	4	20	74	71.1	69	14.8	1.94	50.5	12.7	0.39	57.9	3	60.1	3.25	3	3	3	5	5	198				
Sharpshoote	61.2	33.2	80	1	5	18	38	39	57.0	64	15.2	1.85	52.1	14.2	0.37	57.6	2	59.3	3.50	2	3	4	5	5	181				
BZ987-331	56.3	37.8	88	0	22	39	25	14	44.9	44	14.4	1.98	47.4	12.8	0.36	57.6	3	59.3	7.00	3	4	3	5	5	196				
T801.93	58.2	35.7	72	2	0	10	38	52	62.6	76	15.4	1.88	48.6	13.6	0.60	59.0	3	60.2	6.00	3	3	4	5	5	221				
T1052	57.2	33.8	61	3	4	20	34	42	59.4	60	15.8	2.00	46.5	14.4	0.45	55.8	3	58.4	7.50	3	5	3	4	5	189				
NX95-5106	58.2	32.9	72	2	2	8	29	61	63.5	54	14.6	2.03	46.6	13.9	0.44	55.5	3	56.6	7.00	3	3	3	5	5	186				
SDM50005	59.5	30.5	70	1	4	12	35	49	60.6	57	15.0	1.95	53.7	13.9	0.44	55.0	2	56.5	4.50	3	3	3	5	5	190				
WA7802	55.4	33.3	64	4	8	22	36	34	54.0	46	14.6	2.01	46.4	13.9	0.38	57.6	4	59.3	5.50	3	3	3	5	5	194				
TX92U2317	54.4	30.1	47	5	4	8	28	60	62.2	53	14.6	1.87	42.9	12.6	0.51	57.3	3	58.8	5.00	3	3	5	5	5	188				
BW693	57.6	35.6	88	1	3	13	35	49	65.2	78	16.4	1.79	52.1	15.3	0.40	60.8	3	62.5	3.00	3	5	4	5	5	213				

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

3

ELASTIC

DULL

PEN, THICK

COARSE

9

BUCKY

WHAT WILL

FINE

SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 9

LOCATION: Dickinson, ND FARGO, ND

LOCATION: Dickinson, ND																							
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	T	LOAF VOL (cc)	
					A	B	C		D	INDEX	PRO	ASH (14% mb)											EXT (%)
Marquis	57.4	28.3	66	2	1	7	27	65	73.1	65	15.3	1.73	52.1	14.8	0.45	58.2	3	56.5	4.00	3	3	6	210
Chris	57.9	27.2	65	3	1	8	25	66	73.8	70	15.8	1.71	56.1	15.6	0.40	58.6	3	56.6	3.50	3	3	3	206
Era	56.5	27.1	55	4	2	6	24	68	68.4	69	14.2	1.82	58.7	13.6	0.47	55.8	2	54.1	5.00	3	3	6	204
Stoa	56.7	28.1	59	3	1	2	21	76	71.6	68	16.0	1.77	56.7	15.8	0.45	61.1	4	59.1	4.75	3	3	3	213
Butte 86	59.0	34.4	83	0	1	12	36	51	63.1	75	16.1	1.94	56.1	15.8	0.44	60.5	3	58.4	2.75	3	5	4	212
SD3249	60.6	29.9	70	2	3	14	29	54	65.1	67	16.5	1.76	57.1	16.3	0.41	59.6	3	57.5	4.50	3	4	3	210
SD8108	58.8	31.1	73	1	7	19	33	41	60.7	56	15.2	1.75	53.3	14.9	0.39	58.2	4	56.4	5.50	3	3	6	214
SD3219	59.2	29.7	66	4	1	2	20	77	74.3	65	15.0	1.84	56.4	14.1	0.45	56.5	3	54.4	6.00	3	3	3	193
SD8119	57.4	32.0	81	1	1	5	26	68	69.6	80	15.6	1.90	58.2	15.3	0.46	61.4	3	59.1	3.50	3	4	3	210
SD3310	59.3	34.1	85	1	8	26	24	42	60.4	58	17.1	1.87	56.0	16.9	0.39	58.6	3	56.7	3.00	3	3	3	208
MMN93413	55.0	29.7	52	4	1	7	34	58	67.7	72	14.2	1.78	55.7	13.0	0.48	57.6	2	55.6	3.50	3	3	3	193
SBE0050	54.9	28.0	38	4	1	3	27	69	69.0	53	15.4	1.88	49.1	15.3	0.49	60.0	5	57.9	6.00	2	3	6	198
MMN94200	58.0	30.1	73	2	0	4	14	82	73.7	73	15.5	1.80	55.1	15.1	0.48	60.0	4	57.9	4.50	3	3	4	210
MMN94055	57.8	34.5	77	2	7	23	29	41	59.1	49	14.6	1.82	52.6	14.3	0.43	56.2	1	54.4	3.00	2	1	6	185
SBSF0402	57.4	34.0	78	3	4	27	36	33	56.8	64	16.8	1.65	55.2	16.4	0.42	61.1	5	59.1	4.50	3	4	3	217
ND691	57.8	28.2	67	2	0	1	14	85	82.1	65	14.6	1.51	57.1	14.2	0.41	58.6	2	56.7	4.50	2	4	3	206
ND694	58.8	28.9	61	2	1	2	15	82	75.9	76	16.2	1.70	61.9	15.7	0.47	59.0	3	57.0	4.75	3	5	4	211
ND695	58.3	30.0	73	2	1	6	26	67	70.8	67	15.8	1.75	59.7	15.7	0.42	59.3	3	57.0	3.50	3	4	3	217
ND704	59.6	33.1	83	1	1	12	36	51	65.2	72	15.8	1.81	62.6	15.7	0.42	61.4	4	59.1	4.25	3	3	3	225
MT9433	57.0	32.9	73	1	1	4	24	71	66.8	79	15.9	1.76	62.7	15.2	0.49	60.3	3	58.4	3.25	3	5	4	212

FARGO, ND

LOCATION: Dickinson, ND

LOCATION, Dickinson, ND																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR		WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)		
					DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	FLOUR											
					A	B	C	D					INDEX	PRO									ASH (14 % mb)	
MT9508	57.4	33.0	51	2	5	20	35	40	59.0	45	15.5	1.78	55.7	15.2	0.44	60.3	3	58.4	3.00	3	5	4	6	222
B91-0228	59.5	36.1	69	1	1	10	39	50	62.8	72	16.2	1.90	57.0	16.2	0.52	59.3	4	57.0	6.50	3	3	3	6	218
N93-0119	58.0	34.2	84	1	1	5	23	71	71.1	87	16.1	1.75	58.7	14.7	0.45	60.3	3	58.4	3.50	3	3	5	5	209
N93-0136	57.8	27.7	57	4	2	8	22	68	70.5	63	14.9	1.76	60.0	14.4	0.48	57.6	3	55.6	4.50	3	4	3	5	207
N93-0211	57.4	28.9	62	2	1	4	19	76	73.0	72	15.5	1.84	60.3	14.6	0.47	59.6	3	57.5	3.50	3	4	3	5	203
Sharpshoote	54.8	39.5	75	2	0	5	24	71	69.6	99	15.8	2.01	44.9	14.7	0.71									
BZ987-331	55.0	33.7	73	3	17	32	29	22	47.3	38	15.1	1.89	50.5	14.7	0.43	62.5	6	60.4	6.00	3	3	4	5	232
T801.93	57.0	38.5	86	1	2	16	40	42	59.4	80	15.5	1.84	53.1	14.5	0.58	60.5	4	58.4	6.00	3	3	3	6	212
T1052	56.3	35.1	76	2	4	16	38	42	57.7	61	16.5	1.96	49.8	16.2	0.47	60.0	5	57.9	7.00	6	5	3	6	211
NX95-5106	57.0	34.7	82	1	2	6	35	57	62.5	54	14.9	1.80	50.5	14.7	0.46	59.3	3	57.1	5.50	3	3	4	6	219
SDM50005	57.0	32.0	72	4	7	27	35	31	52.2	49	15.4	2.00	54.3	15.3	0.45	57.9	3	55.9	3.25	3	4	5	5	192
WA7802	56.3	34.3	73	2	6	22	42	30	53.9	54	14.5	1.81	57.3	13.9	0.42	57.3	3	55.2	4.50	3	3	4	5	212
TX92U2317	56.2	31.0	53	3	3	11	35	51	61.3	56	14.2	1.79	54.7	13.2	0.45	56.2	2	54.4	4.00	2	3	5	5	200
BW693	56.2	29.3	68	3	5	20	30	45	60.0	66	16.5	1.89	58.8	16.4	0.48	61.4	4	59.1	3.00	3	5	3	5	238

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

BUCKY

FINE

SILKY

0

3

6

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Rep 1

Table 10

LOCATION: Sidney, MT		FARGO, ND																						
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					A	B	C	D		PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)										Rating-----
Marquis	58.4	29.6	61	3	7	18	26	49	64.9	70	15.6	1.93	52.6	15.0	0.46	57.3	2	55.2	3.50	3	3	3	4	205
Chris	57.8	25.8	38	9	5	15	20	60	67.0	60	16.1	1.99	54.9	15.9	0.41	56.9	2	54.7	3.50	3	3	5	5	194
Era	59.1	28.0	49	6	4	9	24	63	66.3	68	15.0	1.89	54.7	14.3	0.46	57.3	3	55.2	5.00	3	3	5	5	204
Stoa	58.9	27.7	38	5	2	9	21	68	69.6	69	15.3	1.85	56.1	14.8	0.42	60.0	3	57.9	4.00	3	3	5	6	211
Butte 86	59.7	30.7	64	2	1	11	26	62	67.2	73	16.0	1.96	55.9	15.4	0.46	60.3	2	58.3	2.50	2	3	3	6	207
SD3249	61.4	28.2	45	4	5	5	23	67	70.4	75	16.4	1.99	57.8	15.9	0.41	57.9	3	56.0	4.50	3	5	5	6	202
SD8108	60.4	28.3	39	4	2	15	27	56	65.1	43	15.3	1.78	51.2	14.3	0.37	57.3	3	55.2	5.50	3	3	6	6	201
SD3219	61.4	31.2	53	3	2	5	23	70	69.5	67	15.5	1.96	56.5	14.3	0.43	58.2	2	56.4	4.00	3	3	4	5	220
SD8119	59.7	30.4	65	2	2	10	25	63	65.3	71	16.2	1.93	55.9	15.1	0.45	59.3	2	57.3	3.25	3	4	3	6	210
SD3310	60.7	30.8	67	2	8	27	29	36	56.2	57	17.1	1.88	53.8	16.6	0.38	59.6	2	57.5	2.75	3	4	3	6	221
MN93413	57.2	28.3	26	11	2	14	24	60	65.1	55	13.7	1.81	56.1	12.5	0.43	57.3	3	55.2	4.00	3	4	5	5	188
SBE0050	58.4	27.1	28	11	2	11	20	67	68.8	55	15.6	1.89	52.4	15.1	0.46	58.3	3	56.4	5.00	3	5	3	5	214
MN94200	59.9	29.4	53	3	2	6	24	68	69.3	71	14.7	1.84	54.7	13.5	0.44	58.6	3	56.8	4.00	3	5	4	5	189
MN94055	58.9	31.8	59	3	8	19	26	47	60.6	52	15.3	1.83	54.0	14.8	0.42	56.5	2	54.5	3.00	2	4	3	5	192
SBF0402	60.4	32.1	75	2	9	19	29	43	57.0	70	16.3	1.94	54.7	15.7	0.43	59.0	3	57.3	4.25	3	3	5	5	216
ND691	59.0	25.9	41	6	2	4	18	76	72.3	74	15.1	1.73	56.6	14.5	0.41	57.6	3	55.7	5.25	3	3	3	5	203
ND694	61.6	26.6	38	4	1	4	16	79	72.3	76	15.8	1.84	56.5	14.8	0.42	60.0	4	57.9	4.00	3	5	3	6	201
ND695	61.2	29.5	52	3	2	11	28	59	64.3	65	15.6	1.79	52.4	14.7	0.36	58.2	3	56.4	4.00	3	3	3	6	206
ND704	61.2	32.4	62	2	3	10	32	55	62.5	65	15.4	1.89	58.0	14.5	0.41	59.3	3	55.7	4.25	3	5	3	5	214
MT9433	61.4	32.1	58	2	2	5	27	66	65.1	88	14.8	1.79	59.1	13.9	0.45	57.9	3	56.0	3.50	3	5	5	5	209

LOCATION: Sidney, MT

FARGO, ND

LOCATION: Stoney, MT																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR		WHEAT		FLOUR		FLOUR		MIX ABS	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)										
					A	B	C	D							INDEX									
MT9508	59.1	34.8	50	3	23	28	26	23	46.8	56	17.1	1.94	50.5	16.6	0.41	59.6	2	57.5	2.50	3	3	3	5	229
B91-0228	61.7	34.0	52	2	5	15	31	49	59.2	65	15.9	2.04	52.6	15.0	0.45	57.6	3	55.7	5.50	3	3	5	5	192
N93-0119	60.6	32.3	68	2	1	6	26	67	65.8	91	15.8	1.91	54.9	14.2	0.45	60.5	3	58.3	3.00	3	3	5	5	212
N93-0136	61.0	30.8	63	3	6	21	29	44	57.2	62	14.8	1.83	57.3	13.8	0.40	56.2	2	54.5	3.50	2	3	6	5	196
N93-0211	60.2	29.7	52	4	3	13	25	59	63.3	76	16.1	1.97	58.6	14.6	0.43	59.0	3	57.3	3.50	3	3	3	5	203
Sharpshooter	57.2	36.9	72	2	28	29	27	16	44.3	50	16.3	2.10	45.8	15.9	0.46	62.7	5	60.9	6.00	3	5	3	6	230
BZ987-331	59.8	37.9	69	1	3	23	36	38	55.8	74	15.0	1.93	52.8	13.4	0.50	59.3	3	57.3	6.00	2	5	3	6	201
T801.93	58.4	35.3	68	1	5	24	35	36	55.0	59	17.0	2.15	52.6	16.9	0.48	62.5	4	60.4	5.00	3	6	3	6	193
T1052	59.9	35.1	45	8	6	21	32	41	56.5	53	14.7	1.91	57.8	13.3	0.45	59.3	3	57.3	4.00	3	3	3	6	210
NX96-5106	58.6	35.7	67	3	4	23	36	37	55.6	51	14.5	1.99	48.4	13.7	0.44	59.0	4	57.3	6.50	3	3	3	5	197
SDM50005	58.9	34.6	67	2	1	6	26	67	65.7	70	15.2	1.95	51.9	13.6	0.46	59.6	4	57.5	6.50	3	5	3	5	201
WA7802	59.0	32.2	56	3	9	27	32	32	52.5	60	14.8	1.82	53.5	14.3	0.42	60.0	3	57.9	4.50	3	3	3	5	207
TX92U2317	57.7	30.6	49	7	7	12	30	51	59.9	57	15.4	1.79	56.3	12.9	0.41	59.6	3	57.5	4.00	3	3	3	5	207
BW693	57.4	28.4	45	4	7	10	33	50	60.1	64	16.1	1.99	54.5	15.9	0.43	62.5	3	60.4	2.50	3	5	3	6	244

DISTRIBUTION: A= % Soft

B= % Seml-Soft

C= % Seml-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

ELASTIC

DULL

OPEN, THICK

COARSE

CREAMY

BUCKY

BRIGHT WHITE

FINE

SILKY

6

3

0

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Rep 2

Table 10

VARIETY		TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
						DISTRIBUTION			HARD- NESS	PRO	ASH (14% mb)	EXT (%)	FLOUR												
						A	B	C					D	INDEX	PRO	ASH (14 % mb)									
Marquis	59.0	28.3	58	4	6	20	28	46	58.2	66	16.1	2.03	51.4	15.0	0.45	59.0	3	57.1	3.50	3	3	5	5	207	
Chris	60.1	26.2	36	9	5	14	27	54	61.3	70	16.4	1.91	52.9	15.7	0.41	58.6	3	56.6	3.50	3	3	4	5	204	
Era	58.9	28.2	51	5	4	14	26	56	62.3	60	15.4	1.96	53.3	13.6	0.46	55.5	3	53.5	5.00	2	3	3	5	185	
Stoa	58.4	27.2	36	5	3	7	23	67	66.5	69	15.6	1.89	54.9	14.4	0.44	60.3	3	58.2	4.50	3	3	3	5	216	
Butte 86	58.2	31.5	71	2	2	13	32	53	60.9	81	16.6	1.88	54.0	15.3	0.45	63.1	3	61.1	2.50	3	3	3	6	225	
SD3249	61.4	29.9	54	2	8	17	35	40	56.2	74	16.7	1.92	56.6	15.9	0.41	61.4	3	59.5	3.25	3	3	3	5	213	
SD8108	60.6	30.5	51	2	6	19	32	43	55.9	52	15.1	1.81	49.3	14.0	0.37	60.0	4	57.9	4.50	3	3	3	5	210	
SD3219	61.8	32.6	57	3	4	10	29	57	61.4	74	15.4	1.93	56.1	14.0	0.45	58.6	2	56.6	4.25	2	4	3	6	212	
SD8119	59.5	31.9	75	1	3	12	33	52	61.0	76	15.9	1.86	56.3	14.8	0.47	60.3	2	58.2	2.75	3	3	3	6	223	
SD3310	61.2	31.4	67	1	15	30	35	20	47.9	60	16.7	1.87	54.1	16.7	0.39	60.8	3	58.8	2.50	3	3	3	5	209	
MN93413	57.4	30.0	39	7	6	16	32	46	58.8	65	13.7	1.76	56.3	12.3	0.45	57.6	3	55.5	4.25	2	3	6	5	196	
SBE0050	59.2	28.4	31	9	3	14	28	55	62.6	56	14.8	1.84	49.3	14.1	0.46	58.2	3	56.3	5.50	3	5	3	5	210	
MN94200	59.7	29.0	49	4	1	6	22	71	69.1	67	15.3	1.84	54.0	13.9	0.43	57.9	3	56.0	4.75	3	5	5	5	198	
MN94055	60.2	33.4	73	2	7	22	35	36	54.1	53	15.0	1.80	48.1	14.7	0.41	56.2	1	54.4	3.00	2	3	5	5	188	
SBF0402	59.8	33.3	73	1	6	25	33	36	54.1	61	16.5	1.74	52.6	15.7	0.43	60.0	3	57.9	4.50	3	3	5	6	211	
ND691	60.6	28.2	43	6	3	9	18	70	67.5	62	14.7	1.77	55.5	14.4	0.44	59.3	3	57.1	5.50	3	3	3	6	208	
ND694	61.2	29.7	46	4	2	13	32	53	60.9	64	15.9	1.80	53.8	14.6	0.42	61.1	4	59.2	4.00	3	3	5	6	198	
ND695	62.1	31.1	55	3	4	12	32	52	59.9	68	15.1	1.78	51.2	14.3	0.37	57.6	2	55.2	4.00	3	4	3	6	201	
ND704	62.2	31.5	69	1	3	7	25	65	64.4	66	15.6	1.78	54.3	14.9	0.39	58.6	4	56.7	4.50	3	3	3	4	216	
MT9433	61.3	31.7	62	2	2	7	26	65	64.9	78	14.5	1.87	54.9	13.0	0.43	59.0	2	57.3	3.50	3	3	3	6	200	

FARGO, ND

LOCATION: Sidney, MT

LOCATION: Stanley, MT																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating-----			C T	C VOL (cc)
					A	B	C		D	INDEX	PRO	ASH	FLOUR EXT (%)	PRO						ASH (14 % mb)	C	C		
MT9508	58.6	34.9	55	3	24	31	26	19	46.6	48	17.0	1.94	57.1	16.6	0.43	62.7	3	60.6	2.00	3	6	3	6	225
B91-0228	62.0	32.9	58	2	4	15	28	53	59.7	68	16.3	1.92	59.2	15.2	0.46	59.3	3	57.3	5.00	3	5	3	6	200
N93-0119	60.2	31.6	68	1	1	5	16	78	68.8	86	15.9	1.85	59.3	14.0	0.48	59.6	2	57.4	3.50	3	3	5	6	210
N93-0136	61.6	28.7	51	5	3	11	23	63	64.0	50	14.2	1.76	59.7	13.0	0.42	54.3	2	52.5	5.00	2	3	3	4	177
N93-0211	61.3	31.5	59	2	3	14	27	56	61.1	72	15.5	1.87	60.8	13.5	0.45	56.8	2	54.6	4.00	2	5	3	5	198
Sharpshooter					0	0	0	0	0.0	0	Num	#Num!	Num											
BZ987-331	57.2	39.0	80	2	32	37	19	12	41.0	44	16.0	1.93	52.1	15.6	0.47	61.8	5	60.0	5.50	3	3	3	5	227
T801.93	59.9	37.2	76	1	9	24	31	36	53.9	66	15.6	1.90	57.2	14.0	0.53	60.3	4	58.4	5.50	3	5	3	5	218
T1052	59.0	36.9	75	1	6	23	39	32	53.2	57	17.0	2.08	53.6	16.4	0.48	60.5	4	58.4	5.50	3	6	6	6	212
NX96-5106	59.7	35.6	71	2	6	16	38	40	55.6	43	15.3	1.89	50.9	13.8	0.44	60.0	4	57.9	5.50	3	3	3	6	207
SDM50005	60.5	32.5	66	3	9	23	31	37	53.1	52	15.3	1.78	58.6	14.7	0.45	58.6	3	56.7	3.00	3	3	3	5	197
WA7802	59.1	33.8	62	2	12	29	30	29	50.6	53	15.6	1.73	62.1	14.2	0.39	59.6	3	57.4	4.50	3	3	3	5	214
TX92U2317	58.1	33.4	55	4	5	23	32	40	55.8	53	14.9	1.84	55.2	13.5	0.44	57.9	2	56.1	4.00	3	3	5	5	210
BW693	57.4	30.4	47	4	9	18	33	40	56.0	61	16.5	2.01	58.6	15.5	0.45	60.3	3	58.4	3.00	3	3	3	5	220

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

BUCKY

FINE

SILKY

0

3

6

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 11

LOCATION: Williston, ND										FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	LOAF VOL (cc)
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14% mb)									
Marquis	56.8	28.9	58	4	15	23	33	29	50.3	68	16.4	1.74	54.0	15.8	0.42	58.0	2	56.1	3.00	3	5	3	4	216
Chris	55.4	25.3	45	9	13	26	29	32	50.6	69	16.8	1.70	55.0	16.1	0.38	58.2	3	56.4	4.00	3	3	3	4	208
Era	54.9	26.0	38	11	8	16	28	48	57.1	52	15.0	1.60	54.2	14.0	0.48	55.3	3	53.2	5.50	3	3	3	4	210
Stoa	56.6	26.8	49	5	5	10	30	55	61.6	64	16.8	1.61	53.5	15.8	0.41	60.0	3	57.9	4.50	3	3	3	5	218
Butte 86	57.7	33.6	78	4	7	27	38	28	52.2	71	17.4	1.90	55.9	16.6	0.43	60.8	3	58.6	2.50	3	4	3	5	204
SD3249	59.7	29.4	60	4	13	31	29	27	50.4	66	17.6	1.79	55.7	16.7	0.37	59.6	4	57.4	4.50	3	4	3	5	214
SD8108	57.2	29.9	56	5	27	36	21	16	41.7	55	16.4	1.69	48.3	16.0	0.33	58.2	4	56.4	5.50	3	3	3	4	213
SD3219	59.4	30.6	63	4	5	19	40	36	55.3	68	17.1	2.02	56.5	15.2	0.43	60.8	4	58.6	4.25	3	5	6	5	216
SD8119	56.8	31.3	72	4	11	19	35	35	54.1	69	17.5	1.78	53.8	17.1	0.40	62.5	3	60.2	3.00	3	4	3	5	224
SD3310	60.0	31.0	62	2	24	32	29	15	45.5	49	18.3	1.93	54.8	18.2	0.37	63.1	3	61.0	2.50	3	1	3	5	221
MN93413	54.2	29.8	45	9	8	23	30	39	56.0	66	15.6	1.69	59.2	14.6	0.44	59.6	3	57.4	3.75	3	5	4	4	211
SBE0050	56.1	26.4	49	10	4	14	31	51	61.5	60	17.2	1.76	53.6	16.7	0.44	61.1	4	59.1	4.50	3	3	3	4	240
MN94200	57.9	28.9	59	4	7	16	22	55	63.8	79	16.7	1.79	58.3	16.4	0.41	61.8	3	59.9	3.50	3	3	3	4	217
MN94055	56.5	33.7	69	4	32	26	17	25	45.1	55	16.6	1.86	52.6	16.2	0.41	59.0	2	57.0	2.25	2	3	3	4	215
SBF0402	57.8	34.2	75	3	23	32	20	25	47.1	54	18.1	1.93	58.4	18.0	0.41	63.7	5	61.6	4.00	3	4	3	5	228
ND691	56.1	25.6	37	11	4	14	28	54	62.5	68	16.2	1.57	59.2	15.2	0.44	62.5	4	60.2	4.25	3	1	3	5	210
ND694	59.2	25.4	47	10	5	11	25	59	66.1	67	16.8	1.82	56.7	16.6	0.36	61.4	4	59.1	3.50	3	5	4	5	220
ND695	59.0	29.1	53	6	9	23	31	37	56.2	58	16.7	1.67	54.0	16.0	0.36	59.6	3	57.4	3.25	3	3	5	5	215
ND704	59.5	30.3	70	4	4	21	36	39	57.9	65	17.0	1.72	59.7	16.7	0.35	61.8	4	59.8	3.50	3	3	3	5	216
MT9433	57.8	30.4	58	3	6	16	27	51	58.9	80	17.3	1.79	59.6	16.4	0.40	61.1	3	59.2	3.00	3	3	4	4	205

FARGO, ND

LOCATION: Williston, ND

LOCATION: <i>Pratishth, ND</i>																									
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	LOAF VOL (cc)	
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)										C
MT9508	57.3	34.4	57	2	44	28	15	13	39.4	50	17.6	1.77	50.0	17.5	0.36	62.7	4	60.8	2.25	3	3	4	4	4	217
B91-0228	58.2	29.5	49	5	6	16	24	54	62.7	76	17.4	1.92	54.2	16.6	0.46	62.7	4	60.8	5.00	3	5	5	5	5	216
N93-0119	58.3	29.3	62	4	5	10	17	68	73.0	79	17.6	1.83	55.2	16.6	0.41	60.8	3	58.7	2.75	3	3	3	3	5	222
N93-0136	57.6	27.7	57	3	12	22	31	35	55.3	59	15.8	1.73	59.5	14.9	0.39	56.9	2	58.7	3.50	2	3	3	3	5	187
N93-0211	59.0	30.1	68	4	9	16	27	48	59.9	63	17.7	1.86	57.1	16.9	0.40	61.4	3	59.5	3.00	3	5	3	3	5	215
Sharpshoote	61.4	32.3	74	4	33	34	20	13	41.6	52	16.7	1.56	59.2	15.9	0.33	61.4	2	59.5	2.00	3	3	3	3	5	198
BZ987-331	55.8	37.7	78	2	54	22	10	14	35.9	48	17.3	1.79	51.7	17.1	0.42	66.1	6	64.1	5.50	3	3	3	3	5	214
T801.93	56.6	36.7	78	3	12	32	30	26	51.4	73	17.5	2.00	51.4	16.1	0.52	64.7	5	62.9	4.50	3	3	3	3	6	240
T1052	57.2	34.8	78	2	28	30	21	21	46.0	57	18.6	1.89	50.7	18.5	0.43	63.4	4	61.6	3.50	3	3	3	3	5	200
NX95-5106	57.4	34.8	73	4	15	32	25	28	50.2	48	16.5	2.00	50.7	15.8	0.39	63.1	4	61.0	4.50	3	5	3	3	5	205
SDM50005	57.9	32.6	72	4	30	31	23	16	41.8	47	17.0	1.67	55.2	16.9	0.39	60.5	3	58.2	2.75	3	5	3	3	5	208
WA7802	55.9	32.1	58	4	26	31	27	16	43.6	55	16.6	1.80	56.8	15.7	0.37	60.3	3	58.2	4.00	3	3	3	3	5	206
TX92U2317	56.2	29.7	53	7	9	29	35	27	51.7	50	16.0	1.62	54.2	15.6	0.42	59.6	2	57.5	3.50	3	3	3	3	5	196
BW693	55.8	28.3	53	6	13	33	31	23	48.6	58	17.0	1.82	56.1	16.3	0.41	63.1	3	61.0	3.00	3	5	3	3	5	217

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

3

6

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BUCKY

BRIGHT WHITE

FINE

SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 12

LOCATION: <i>Bozeman, MT</i>										FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					A	B	C	D		INDEX	PRO		ASH	PRO										ASH
Marquis	60.5	36.7	77	0	9	26	37	28	51.7	63	14.6	1.67	53.1	14.2	0.38	58.2	2	56.3	3.00	2	3	5	4	188
Chris	59.7	34.3	90	0	9	29	38	24	50.3	68	15.6	1.69	55.0	15.2	0.35	59.0	2	57.1	2.50	2	3	5	4	198
Era	56.9	34.9	89	0	5	18	32	45	58.3	66	13.5	1.51	55.3	12.4	0.35	57.3	2	55.6	3.00	2	4	3	4	187
Stoa	59.9	38.1	94	0	1	11	41	47	59.4	73	14.6	1.56	57.5	13.7	0.33	59.6	2	57.7	3.00	2	4	3	4	203
Butte 86	60.3	40.2	96	0	3	20	43	34	54.9	73	14.6	1.47	57.3	13.9	0.34	60.8	3	58.6	2.50	2	4	3	4	185
SD3249	61.9	37.0	90	0	15	31	37	17	48.2	69	16.0	1.55	59.5	15.5	0.32	62.7	3	60.8	2.50	3	3	3	4	210
SD8108	61.0	41.4	94	0	25	41	25	9	42.0	60	14.0	1.50	52.3	13.4	0.30	59.3	2	57.1	3.00	3	3	3	5	186
SD3219	61.6	37.5	91	0	0	13	41	46	59.2	67	14.2	1.47	57.5	12.8	0.36	57.3	2	55.6	2.75	1	1	3	4	177
SD8119	58.6	38.9	96	0	3	22	43	32	54.5	70	14.9	1.66	57.9	13.8	0.36	58.6	2	56.7	2.00	2	4	5	4	188
SD3310	61.4	40.0	95	0	28	43	20	9	40.3	58	15.5	1.50	58.8	15.3	0.35	59.0	2	57.1	1.75	2	1	6	4	199
MN93413	60.2	42.2	97	0	8	35	40	17	48.3	68	12.3	1.29	57.7	10.8	0.35	55.8	2	54.0	2.50	2	4	5	4	170
SBE0050	60.4	39.6	96	0	6	22	40	32	53.9	63	13.5	1.39	57.7	12.6	0.37	57.3	2	55.6	2.50	2	3	3	4	186
MN94200	61.4	39.6	94	0	1	9	40	50	61.0	82	14.0	1.44	57.1	12.8	0.37	57.9	2	56.1	2.75	2	3	3	4	183
MN94055	60.2	41.6	94	0	16	35	34	15	46.4	55	13.3	1.55	53.1	12.4	0.35	55.0	1	53.2	2.00	1	1	3	4	167
SBF0402	60.9	42.8	95	0	12	39	34	15	46.5	62	15.1	1.40	57.3	14.3	0.33	59.3	3	57.1	3.50	2	3	3	4	198
ND691	59.7	34.6	88	0	2	11	34	53	60.5	70	13.6	1.31	60.7	12.3	0.35	58.6	2	56.7	3.25	1	1	5	4	195
ND694	62.5	37.3	94	0	2	18	42	38	56.3	74	15.0	1.49	60.1	14.5	0.34	59.6	2	57.7	2.50	2	5	3	5	186
ND695	61.6	38.7	92	0	6	23	37	34	53.8	64	15.1	1.47	55.7	14.1	0.32	59.6	2	57.7	3.00	2	3	3	5	191
ND704	61.8	40.6	96	0	4	26	44	26	52.1	71	14.3	1.39	58.7	13.9	0.34	58.6	2	56.6	3.00	2	3	4	4	192
MT9433	61.4	38.6	92	0	1	10	28	61	62.3	88	14.9	1.56	57.8	13.9	0.36	60.8	2	58.7	2.25	2	5	3	5	196

LOCATION: *Bozeman, MT* *FARGO, ND*

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	PAT	BAKE ABS	MIX TIME (min)	D	C					LOAF VOL (cc)
					A	B	C		PRO	ASH										C	C	C	G	T	
																				-----Rating-----					
MT9508	62.0	44.7	92	0	43	31	19	7	37.2	51	15.2	1.48	52.9	14.8	0.32	60.5	2	58.3	1.75	3	5	3	5	5	195
B91-0228	62.6	44.8	95	0	2	27	37	34	54.6	75	15.0	1.60	54.4	14.2	0.38	60.0	3	57.9	3.50	3	3	3	3	5	194
N93-0119	61.0	39.5	96	0	1	14	42	43	58.8	85	14.8	1.45	55.1	13.1	0.39	58.6	2	56.6	2.50	2	3	3	3	4	187
N93-0136	61.0	35.0	88	0	7	28	41	24	51.0	53	12.6	1.41	55.7	11.3	0.31	54.6	2	52.9	4.00	2	4	6	4	4	168
N93-0211	61.8	38.3	95	0	3	16	38	43	56.2	64	14.1	1.50	54.5	13.2	0.33	58.2	2	56.4	2.50	2	1	3	5	5	188
Sharpshooter	62.0	40.7	95	0	18	41	30	11	44.0	60	15.4	1.51	53.3	14.8	0.31	61.4	2	59.7	2.50	3	3	3	5	5	204
BZ987-331	59.9	49.6	92	0	35	45	14	6	36.8	50	13.7	1.41	48.8	13.4	0.35	64.4	4	62.5	3.50	3	1	3	5	5	202
T801.93	62.1	51.8	98	0	10	40	37	13	47.0	74	14.4	1.49	51.4	13.0	0.45	63.4	3	61.6	3.25	3	4	3	5	5	213
T1052	61.0	46.0	97	0	14	43	31	12	44.9	67	15.2	1.64	54.0	14.9	0.36	62.5	3	60.4	3.75	3	5	4	5	5	200
NX95-5106	61.5	44.4	98	0	5	31	44	20	50.1	59	13.8	1.52	55.2	12.5	0.33	60.5	3	58.3	3.50	3	4	4	4	4	185
SDM50005	61.6	43.5	95	0	15	35	34	16	46.4	61	14.6	1.53	55.7	14.2	0.35	58.2	2	56.4	2.25	2	4	3	4	4	189
WA7802	61.3	45.9	97	0	17	39	30	14	45.4	56	13.6	1.40	54.5	12.3	0.29	58.6	2	56.6	3.00	2	4	3	4	4	185
TX92U2317	58.6	38.3	84	0	3	15	41	41	56.8	60	12.8	1.51	50.7	11.7	0.39	56.5	2	54.3	3.25	2	4	4	4	4	177
BW693	59.5	42.1	97	0	25	38	26	11	42.4	71	15.8	1.54	55.5	15.0	0.34	60.3	2	58.3	1.75	2	3	5	5	5	206

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK
YELLOWIRREG, THICK
HARSH

3

PLIABLE

GREY

OPEN, THICK
COARSE

ELASTIC

DULL

CREAMY

6

BUCKY

BRIGHT WHITE

FINE
SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS

WHEAT QUALITY LAB

Rep 1

Table 13

LOCATION: *Havre, MT*

FARGO, ND

LOCATION: Haver, MI																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					A	B	C		D	INDEX	PRO	ASH (14% mb)	EXT (%)	PRO										ASH (14 % mb)
CI 3651	57.3	27.7	53	5	4	13	38	45	58.5	73	16.2	1.53	55.4	15.4	0.40	58.2	3	56.5	3.50	3	3	3	6	195
CI 13761	56.8	24.5	33	5	2	12	34	52	59.6	70	16.1	1.54	57.5	15.4	0.35	57.9	3	55.8	4.00	3	4	3	6	188
CI 13986	56.6	26.5	58	4	2	6	23	69	64.6	63	14.7	1.60	53.3	13.6	0.41	57.3	3	55.0	5.00	3	3	5	5	187
ND582	56.6	26.7	23	5	3	3	22	72	66.4	55	15.8	1.55	59.9	15.3	0.36	60.0	4	57.9	5.00	3	3	3	5	198
ND597	58.2	29.8	47	3	2	12	28	58	61.0	65	14.9	1.39	58.2	13.9	0.36	58.6	3	56.8	4.00	3	3	3	5	189
SD3249	59.8	28.7	39	2	6	22	37	35	54.4	57	15.6	1.50	59.9	15.3	0.38	59.6	4	57.4	4.00	3	3	3	6	203
SD8108	59.1	30.5	51	2	16	37	27	20	46.3	43	14.1	1.37	50.7	13.8	0.31	55.3	4	53.2	7.25	6	3	6	5	178
SD3219	59.3	27.6	24	7	2	8	14	76	67.7	60	14.6	1.44	59.2	13.6	0.42	55.5	3	53.6	7.00	3	4	3	5	178
SD8119	57.3	29.5	51	2	2	12	24	62	63.0	58	14.7	1.38	59.7	14.1	0.41	59.3	3	57.2	4.50	3	4	3	5	181
SD3310	58.9	30.2	39	4	21	39	30	10	42.8	37	15.2	1.52	52.6	15.0	0.35	59.3	3	57.2	4.00	3	1	4	5	186
MN93413	55.5	28.1	34	4	1	7	25	67	64.3	59	14.6	1.48	56.8	13.3	0.41	58.6	3	56.8	4.00	3	3	4	6	186
SBE0050	57.3	28.0	15	4	1	5	26	68	63.8	42	13.9	1.37	45.5	13.0	0.37	55.8	4	54.3	7.00	3	6	6	5	175
MN94200	56.2	25.2	20	10	1	3	9	87	73.8	75	15.1	1.56	49.1	13.9	0.42	58.6	4	56.8	5.50	3	3	3	6	180
MN94055	57.3	30.3	45	3	7	23	37	33	52.3	64	15.4	1.54	50.2	15.0	0.29	57.6	3	55.4	3.00	3	4	5	5	185
SBF0402	56.6	28.5	35	5	3	18	38	41	56.2	52	15.6	1.57	57.7	15.4	0.41	61.1	5	59.2	7.00	3	3	4	5	195
ND691	55.5	23.5	9	11	4	7	19	70	64.8	61	15.8	1.45	62.4	15.2	0.42	61.8	4	59.8	5.50	3	4	3	6	200
ND694	59.5	29.4	40	4	5	11	33	51	59.5	68	15.0	1.60	60.6	14.3	0.39	59.6	3	57.5	4.50	3	5	4	6	208
ND695	59.6	30.2	61	2	5	14	35	46	57.6	58	15.5	1.35	57.7	14.7	0.36	59.6	3	57.5	3.50	3	4	3	6	200
ND704	58.6	28.3	35	5	3	8	23	66	63.8	59	14.4	1.52	56.6	13.6	0.41	58.2	3	56.2	5.00	3	4	5	5	198
MT9433	59.5	33.5	72	2	3	18	44	35	55.1	79	16.0	1.48	64.5	15.0	0.39	60.5	3	58.3	3.00	3	3	5	5	191

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Rep 1

Table 13 (cont)

LOCATION: *Havre, MT*

FARGO, ND

LOCATION: <i>Harpe, MI</i>																											
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS				HARDNESS		NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	C VOL (cc)	
					A	B	C	D	INDEX	PRO		ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)												
																Rating-----											
MT9508	58.7	32.9	38	1	12	27	38	23	49.4	55	14.9	1.37	56.1	14.8	0.37	60.5	3	58.3	2.50	3	2	3	6	6	191		
B91-0228	61.4	37.1	54	1	1	16	45	38	56.6	67	15.7	1.51	56.1	15.1	0.40	59.0	3	57.1	5.75	3	5	3	5	3	5	187	
N93-0119	57.3	27.1	42	4	1	4	18	77	67.3	81	15.2	1.59	58.7	13.6	0.43	59.3	3	57.1	5.25	3	3	3	3	5	5	195	
N93-0136	58.2	28.5	37	3	5	14	36	45	58.1	59	14.2	1.62	61.6	13.2	0.39	55.8	3	54.4	4.50	3	4	5	5	5	5	172	
N93-0211	59.2	28.9	45	5	4	11	27	58	61.4	75	15.1	1.57	60.3	13.7	0.40	59.3	3	57.1	4.50	3	4	3	5	5	5	187	
FA994601	60.7	30.7	48	3	5	16	40	39	55.7	48	14.8	1.40	55.7	14.1	0.35	59.3	3	57.1	3.50	3	3	3	3	5	5	180	
BZ987-31	55.6	31.6	52	3	5	27	41	27	52.0	46	14.8	1.50	51.2	14.4	0.36	62.5	5	60.5	7.50	3	3	3	3	6	6	203	
T801.93	58.6	38.6	78	1	3	17	44	36	55.3	67	15.1	1.49	55.6	13.8	0.44	60.5	4	58.3	7.00	3	3	3	5	6	6	191	
T1052	56.6	33.9	44	1	4	15	36	45	57.2	59	15.9	1.60	55.5	15.5	0.40	60.0	4	57.9	7.00	6	5	3	6	6	6	190	
NX955106	57.0	30.7	48	1	3	7	30	60	61.5	51	15.6	1.54	49.5	15.1	0.39	59.6	5	57.5	8.50	3	4	5	6	6	6	190	
SDM50005	56.8	30.2	56	4	13	23	42	22	49.6	58	15.6	1.52	55.5	15.5	0.39	60.3	3	58.3	3.50	3	3	3	3	6	6	196	
WA7802	57.0	32.6	51	2	7	21	38	34	53.1	52	15.1	1.59	54.4	14.5	0.35	59.6	3	57.5	5.50	3	3	3	3	6	6	194	
TX92U231	55.0	28.4	15	6	5	9	32	54	59.3	52	15.4	1.64	47.9	14.7	0.39	59.0	3	57.1	4.00	3	3	3	3	6	6	200	
BW693	57.3	30.5	56	2	13	29	36	22	48.8	65	15.4	1.47	55.9	14.9	0.37	60.5	4	58.3	3.75	3	4	4	4	6	6	200	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

BUCKY

FINE

SILKY

6

3

0

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Rep 2

Table 13

LOCATION: *Havre, MT*

FARGO, ND

LOCATION: Havre, MT																									
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS						NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)
					DISTRIBUTION			INDEX	PRO	ASH (14% mb)		EXT (%)	PRO	ASH (14 % mb)											
					A	B	C								D										
CI 3651	58.6	27.8	60	3	4	17	34	45	58.1	75	15.9	1.55	53.5	14.9	0.39	57.3	2	55.0	4.00	3	3	5	5	187	
CI 13751	57.9	26.1	42	5	7	15	30	48	57.8	71	14.5	1.52	54.3	13.7	0.37	56.2	2	54.4	4.50	2	3	5	5	178	
CI 13986	56.6	26.2	25	8	1	8	19	72	66.8	65	13.8	1.59	50.9	12.5	0.42	54.6	2	52.8	6.50	6	3	3	2	165	
ND582	58.2	27.9	45	4	3	11	23	63	62.8	61	14.7	1.47	53.3	13.6	0.37	57.9	4	55.9	6.00	6	3	5	5	187	
ND597	58.4	30.6	55	2	1	12	32	55	60.9	68	14.9	1.40	55.6	13.6	0.36	58.2	3	56.3	5.00	3	3	3	6	185	
SD3249	61.3	30.2	50	4	12	24	33	31	52.0	66	14.1	1.55	56.2	13.1	0.36	59.3	3	57.0	4.50	3	3	5	6	177	
SD8108	58.7	29.6	45	2	14	30	39	17	47.9	40	13.8	1.42	47.2	13.4	0.32	56.5	4	54.4	7.50	6	3	5	5	172	
SD3219	61.3	31.1	45	4	3	9	21	67	64.0	67	14.0	1.43	57.5	12.4	0.38	56.2	3	54.4	6.75	2	3	5	5	174	
SD8119	57.5	30.1	47	2	5	9	32	54	59.4	59	14.1	1.50	60.7	13.0	0.40	59.3	3	57.0	4.50	3	3	3	5	169	
SD3310	59.4	28.6	44	3	11	23	38	28	50.7	36	13.5	1.37	53.1	13.3	0.36	58.2	2	56.3	4.50	3	3	3	5	182	
MN93413	55.2	28.4	31	5	3	7	30	60	62.8	60	14.3	1.40	56.3	13.0	0.42	59.3	3	57.0	4.25	3	3	6	5	177	
SBE0050	56.2	27.9	15	7	3	7	32	58	61.2	47	14.2	1.45	48.6	13.2	0.37	57.6	4	55.7	7.00	6	3	3	5	185	
MN94200	57.0	26.6	44	6	1	3	15	81	71.4	67	14.6	1.52	50.7	13.1	0.41	58.2	3	56.3	5.50	3	5	6	6	180	
MN94055	58.1	31.8	53	2	10	28	31	31	51.6	61	14.4	1.46	54.3	13.8	0.37	57.6	2	55.7	3.00	2	4	3	6	186	
SBF0402	57.4	29.8	44	3	6	16	32	46	56.7	51	14.8	1.49	53.3	14.6	0.39	59.0	4	57.0	7.00	6	3	5	5	184	
ND691	56.0	25.6	16	8	5	10	27	58	61.5	65	14.7	1.41	58.8	14.2	0.40	59.3	4	57.0	5.50	6	3	3	6	198	
ND694	58.2	27.8	40	4	3	7	20	70	64.8	59	15.1	1.32	54.0	14.2	0.38	57.9	3	55.9	4.50	3	3	5	5	191	
ND695	60.1	33.3	71	2	13	28	37	22	48.9	51	14.5	1.33	51.4	13.3	0.35	60.0	3	57.8	3.00	3	3	4	5	196	
ND704	58.2	28.4	37	7	2	7	20	71	65.3	53	14.4	1.43	54.0	13.4	0.38	57.6	3	55.6	5.00	3	3	3	5	192	
MT9433	59.5	33.2	72	2	3	11	42	44	58.1	91	15.9	1.41	60.5	14.7	0.36	59.0	3	57.0	3.00	3	3	4	5	191	

FARGO, ND

LOCATION: Havre, MT

LOCATION: <i>HARPE, MI</i>																										
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	-----Rating-----						LOAF VOL (cc)
					DISTRIBUTION				PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14 % mb)	ASH (14 % mb)	C C						C G	C T	C C	C G	C T		
					A	B	C																			
MT9508	59.5	36.1	48	1	9	28	44	19	48.6	44	14.2	1.42	53.8	13.6	0.35	57.3	2	55.2	3.50	2	3	6	5	5	190	
B91-0228	61.0	36.9	71	0	2	8	41	49	59.3	68	15.1	1.48	54.7	14.1	0.40	59.0	4	57.0	5.50	6	6	3	5	5	178	
N93-0119	57.7	28.0	37	4	2	3	16	79	68.6	84	14.5	1.61	54.9	12.4	0.42	58.2	3	56.5	5.00	3	3	3	5	5	187	
N93-0136	57.8	29.4	37	5	7	12	25	56	58.4	64	13.8	1.39	56.4	12.8	0.38	55.8	3	53.8	4.00	3	3	5	5	5	186	
N93-0211	58.6	28.4	39	4	3	8	28	61	62.8	63	15.5	1.59	57.7	14.0	0.39	59.6	3	57.6	4.50	3	5	5	6	6	181	
FA994601	61.0	32.5	54	2	9	21	35	35	52.8	56	13.5	1.39	55.9	13.1	0.35	58.2	3	56.5	3.50	3	3	5	6	6	186	
BZ987-31	57.0	35.5	66	2	10	33	38	19	48.2	36	13.8	1.46	51.9	12.9	0.36	57.6	4	55.6	7.50	3	3	3	6	6	190	
T801.93	59.0	37.3	78	2	1	13	50	36	56.8	70	14.5	1.50	53.7	12.9	0.43	59.3	3	57.0	6.50	3	3	3	6	6	190	
T1052	57.2	32.4	49	3	3	11	34	52	59.5	57	15.6	1.58	53.6	14.9	0.41	58.6	3	56.7	7.00	3	3	3	6	6	187	
NX955106	56.8	30.3	54	2	1	9	28	62	62.0	50	14.6	1.51	49.3	14.0	0.38	59.3	4	57.0	7.50	3	3	3	6	6	191	
SDM50005	57.8	30.7	43	4	5	17	40	38	54.8	45	15.0	1.48	54.8	14.4	0.39	59.3	3	57.0	3.50	3	3	4	6	6	195	
WA7802	56.8	34.7	66	3	7	27	40	26	51.4	53	14.6	1.48	54.8	13.9	0.35	59.0	3	57.0	5.00	3	4	3	6	6	202	
TX922U231	56.5	28.8	15	9	5	10	29	56	60.2	52	14.8	1.54	47.9	13.4	0.41	57.6	2	55.6	4.50	3	3	3	6	6	208	
BW693	57.8	31.2	64	2	6	22	42	30	53.3	68	15.0	1.40	57.8	14.2	0.35	57.9	3	56.0	3.50	3	3	6	6	6	186	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

3

6

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

BUCKY

FINE

SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 14

FARGO, ND																								
LOCATION: Pullman, WA																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					DISTRIBUTION			HARD- NESS	PRO	ASH (14% mb)	FLOUR EXT (%)	PRO	ASH (14 % mb)											
					A	B	C							D	INDEX									
Marquis	60.7	29.5	73	1	1	7	22	70	67.8	69	12.2	1.49	51.2	11.0	0.38	55.0	2	55.0	3.50	1	3	6	2	145
Chris	61.4	27.2	49	4	2	3	23	72	70.1	70	11.4	1.52	48.6	10.4	0.37	51.6	2	51.6	4.50	1	4	6	2	136
Era	60.9	27.0	52	4	2	4	18	76	68.8	64	10.4	1.48	48.6	8.3	0.41	48.5	1	50.3	6.50	1	1	6	1	120
Stoa	62.2	30.2	64	4	1	3	21	75	71.4	67	11.2	1.41	49.8	9.6	0.33	53.2	2	54.2	4.50	1	3	6	4	141
Butte 86	62.0	32.7	72	1	1	5	24	70	71.3	67	11.1	1.49	49.8	9.0	0.35	53.2	2	54.2	4.25	1	1	3	1	133
SD3249	57.5	28.3	42	2	1	3	21	75	71.2	65	11.2	1.42	49.3	10.4	0.34	53.2	2	54.2	4.75	1	1	3	1	130
SD8108	62.6	32.3	64	1	4	14	37	45	57.8	45	10.9	1.33	45.8	9.4	0.33	50.2	1	52.3	7.00	1	3	3	4	141
SD3219	63.8	31.3	65	1	2	12	31	55	61.3	72	9.6	1.41	47.4	7.8	0.36	49.6	1	53.0	6.50	1	1	6	1	122
SD8119	61.3	30.4	66	0	1	3	25	71	65.3	69	10.9	1.45	50.7	8.9	0.37	52.2	1	56.4	4.00	1	1	6	4	138
SD3310	63.6	30.8	69	0	3	13	31	53	63.4	57	10.5	1.50	46.9	9.9	0.35	52.6	2	56.7	4.00	1	4	3	5	148
MN93413	59.9	29.7	52	4	4	14	38	44	56.8	63	9.4	1.30	51.4	7.6	0.39	48.9	1	52.9	5.00	1	4	3	1	134
SBE0050	61.4	28.3	40	5	0	4	29	67	66.0	60	9.8	1.39	50.0	8.3	0.37	49.6	1	53.5	8.50	1	1	6	1	119
MN94200	61.0	27.6	53	2	2	3	13	82	69.4	75	10.4	1.43	47.0	8.3	0.37	51.3	1	55.0	5.00	1	4	6	1	137
MN94055	61.6	32.0	60	2	1	12	30	57	61.7	71	10.5	1.42	51.7	9.2	0.34	51.6	1	55.6	3.25	1	1	3	4	134
SBF0402	62.2	33.2	70	1	4	19	42	35	54.7	56	10.8	1.42	53.8	9.3	0.33	50.8	2	54.7	6.50	1	4	6	2	139
ND691	62.1	28.1	54	2	1	3	19	77	67.9	76	10.4	1.31	53.5	9.1	0.34	52.2	2	56.4	5.50	1	4	3	1	138
ND694	62.6	28.4	63	2	1	3	19	77	69.5	68	11.2	1.41	52.4	9.2	0.36	51.9	2	55.8	4.75	1	4	5	2	144
ND695	61.6	30.8	65	4	1	9	31	59	62.8	61	10.5	1.38	50.0	9.6	0.35	50.2	1	54.2	4.00	1	4	5	2	138
ND704	61.6	27.1	60	3	1	5	27	67	65.7	57	11.4	1.43	52.6	9.6	0.34	52.9	2	56.7	4.50	1	3	3	4	152
MT9433	61.7	31.7	66	2	1	3	25	71	66.6	72	11.9	1.54	53.1	10.1	0.39	53.8	2	57.9	4.00	2	3	3	5	165

FARGO, ND

LOCATION: Pullman, WA

LOCATION: Pullman, WA																								
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14% mb)										
					A	B	C	D																INDEX
MT9608	62.0	32.0	32	5	3	20	44	33	55.2	60	11.8	1.50	54.6	10.9	0.32	54.6	2	58.6	2.50	2	4	5	5	175
B91-0228	63.0	32.0	48	5	1	5	21	73	67.4	81	11.5	1.72	50.2	10.3	0.42	55.3	3	59.1	5.00	2	3	3	5	152
N93-0119	61.6	29.5	63	2	1	1	11	87	71.4	81	10.3	1.36	50.2	8.1	0.38	51.3	1	55.3	5.00	1	1	6	1	124
N93-0136	62.6	30.8	67	2	3	9	28	60	62.3	65	10.1	1.38	51.7	8.5	0.33	49.6	1	53.4	6.00	1	1	6	1	128
N93-0211	61.0	29.0	57	2	1	1	12	86	72.2	74	11.2	1.45	50.7	9.1	0.39	53.2	2	57.2	3.50	1	4	5	4	142
Sharpshooter	63.9	31.7	66	1	3	9	33	55	61.3	52	11.1	1.33	50.5	9.9	0.31	53.2	2	57.2	4.50	1	3	3	5	146
BZ987-331	60.9	36.6	87	0	2	15	51	32	54.8	48	9.8	1.39	46.7	8.5	0.34	50.3	1	54.3	6.00	1	1	3	2	132
T801.93	61.8	36.4	75	0	1	5	29	65	62.3	82	9.7	1.52	48.6	8.1	0.43	51.3	1	55.3	8.00	1	3	5	2	140
T1062	59.5	31.0	44	5	2	9	28	61	63.0	60	11.1	1.49	49.3	9.5	0.39	52.6	2	56.7	6.50	2	3	5	5	166
NX95-5106	61.7	34.2	61	3	1	9	31	59	61.2	60	10.2	1.35	48.6	8.8	0.36	51.6	1	55.5	5.00	1	4	3	4	138
SDM50005	61.0	30.0	64	2	0	4	33	63	64.6	65	10.8	1.50	49.8	9.4	0.36	51.3	1	55.3	4.50	1	3	3	4	155
WA7802	60.2	32.1	70	1	2	9	32	57	61.2	61	10.3	1.38	47.2	8.9	0.34	51.3	1	55.3	5.00	1	4	3	4	152
TX92U2317	58.6	28.6	30	8	0	5	22	73	67.5	54	10.8	1.54	47.1	8.8	0.39	49.9	1	53.9	7.00	1	4	3	4	142
BW693	60.9	32.8	76	1	0	8	32	60	64.6	65	11.3	1.60	48.6	9.8	0.37	52.2	2	56.2	4.50	1	4	6	4	142

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

FINE

SILKY

6

3

0

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table of URN Averages:
Northeast Region

REGION: *Northeast*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					PRO	ASH (14% mb)	EXT	PRO	ASH (14 % mb)									
Std. Butte 86	58.5	32.0	61.3	65.8	15.2	1.72	56.3	14.5	0.40	2.8	57.8	3.19	3.0	3.5	3.8	5.0	201.5	
Marquis	<u>58.6</u>	29.3	<u>66.3</u>	<u>66.9</u>	14.7	1.81	51.0	13.8	0.46	2.3	56.0	3.19	2.5	3.3	3.5	4.8	189.5	
Chris	58.1	26.8	<u>67.8</u>	<u>68.4</u>	<u>15.3</u>	1.73	54.3	<u>14.9</u>	0.42	2.8	56.8	3.25	2.8	3.5	<u>4.0</u>	5.0	198.0	
Era	57.7	26.4	<u>68.3</u>	<u>66.0</u>	13.9	1.75	<u>59.3</u>	12.8	0.46	2.3	53.4	3.75	2.3	<u>3.8</u>	<u>4.5</u>	4.5	190.5	
Stoa	57.0	28.3	<u>69.0</u>	<u>67.2</u>	15.1	1.81	<u>57.7</u>	14.5	0.43	<u>3.5</u>	<u>58.1</u>	3.63	3.0	<u>3.8</u>	3.8	<u>5.3</u>	198.5	
SD3249	<u>61.8</u>	29.7	<u>63.6</u>	61.6	15.2	1.76	<u>58.4</u>	<u>14.5</u>	<u>0.37</u>	<u>3.5</u>	56.7	4.13	2.8	3.5	3.8	<u>5.3</u>	<u>204.8</u>	
SD8108	<u>60.0</u>	29.8	58.8	55.3	14.5	<u>1.71</u>	51.8	13.7	<u>0.36</u>	<u>3.5</u>	55.0	5.00	3.0	<u>4.0</u>	3.5	4.8	200.8	
SD3219	<u>60.6</u>	29.4	<u>70.9</u>	64.1	14.5	<u>1.71</u>	55.6	13.4	0.41	<u>3.0</u>	55.9	4.44	2.8	3.0	3.5	5.0	197.3	
SD8119	<u>58.6</u>	30.9	<u>64.5</u>	<u>74.3</u>	14.9	1.74	<u>57.6</u>	14.1	0.43	2.8	56.9	3.56	3.0	3.0	<u>4.3</u>	5.0	200.3	
SD3310	<u>60.3</u>	30.7	56.8	53.7	<u>15.5</u>	<u>1.69</u>	<u>58.1</u>	<u>15.1</u>	<u>0.36</u>	2.5	57.4	3.00	2.8	3.0	<u>4.5</u>	5.0	<u>207.8</u>	
MN93413	<u>59.1</u>	31.0	<u>62.9</u>	<u>66.9</u>	13.6	<u>1.67</u>	55.8	12.4	0.43	2.3	54.5	4.13	2.5	3.0	3.0	4.8	189.5	
SBE0050	<u>59.0</u>	29.3	<u>64.6</u>	58.1	14.4	1.74	<u>56.4</u>	13.5	0.44	2.8	55.1	4.56	3.0	<u>4.3</u>	3.3	4.5	<u>204.3</u>	
MN94200	<u>58.8</u>	28.3	<u>67.7</u>	63.6	14.3	<u>1.67</u>	54.7	13.4	0.41	2.8	55.9	3.94	2.8	<u>3.8</u>	3.0	4.8	194.5	
MN94055	<u>59.5</u>	31.6	60.0	53.7	14.3	<u>1.66</u>	51.2	13.6	<u>0.39</u>	2.0	53.6	2.69	2.5	2.5	<u>4.5</u>	4.3	184.0	
SBF0402	<u>59.2</u>	31.3	60.1	60.6	15.1	<u>1.65</u>	56.2	<u>14.5</u>	<u>0.38</u>	<u>3.3</u>	55.7	4.81	2.5	3.5	3.3	4.8	199.0	
ND691	57.9	27.5	<u>76.3</u>	<u>69.1</u>	14.5	<u>1.61</u>	56.2	13.8	0.42	<u>3.5</u>	55.7	5.00	<u>3.8</u>	3.0	3.5	<u>5.3</u>	199.8	
ND694	<u>60.4</u>	29.6	<u>69.0</u>	64.1	<u>15.5</u>	<u>1.68</u>	<u>57.7</u>	<u>14.8</u>	<u>0.36</u>	<u>3.3</u>	56.0	3.81	<u>3.8</u>	<u>4.5</u>	3.0	5.0	200.3	
ND695	<u>58.9</u>	29.8	<u>65.9</u>	60.8	<u>15.4</u>	<u>1.67</u>	<u>57.1</u>	<u>14.8</u>	<u>0.37</u>	2.8	56.3	3.31	2.8	2.8	3.5	<u>5.5</u>	199.5	
ND704	<u>60.4</u>	29.9	<u>67.9</u>	<u>73.1</u>	14.9	<u>1.63</u>	<u>61.2</u>	14.3	<u>0.36</u>	<u>3.0</u>	55.9	3.94	2.8	2.5	3.0	4.8	195.3	

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table of URN Averages:
Northeast Region

FARGO, ND

REGION: *Northeast*

VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	Rating-----						LOAF VOL (cc)
					PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	D				C	C	G	T			
MT9433	57.8	29.5	<u>70.6</u>	<u>76.0</u>	<u>15.2</u>	1.78	<u>59.4</u>	14.2	0.43	<u>3.0</u>	56.5	3.06	2.8	3.0	<u>4.0</u>	<u>5.3</u>	194.0			
MT9508	57.6	30.1	54.1	44.3	14.6	1.75	49.1	14.4	<u>0.38</u>	2.3	56.3	2.56	2.5	<u>4.5</u>	<u>4.3</u>	5.0	<u>202.3</u>			
B91-0228	<u>59.8</u>	30.5	<u>68.5</u>	<u>67.3</u>	15.1	1.85	54.8	14.2	0.43	<u>3.3</u>	55.9	5.13	<u>3.5</u>	<u>4.5</u>	3.5	<u>5.3</u>	<u>204.8</u>			
N93-0119	<u>59.6</u>	29.9	<u>78.8</u>	<u>82.7</u>	<u>15.2</u>	1.73	54.6	13.9	0.42	2.5	56.2	3.38	2.5	2.8	3.8	<u>5.3</u>	198.8			
N93-0136	<u>59.0</u>	29.1	<u>64.0</u>	59.5	13.8	<u>1.70</u>	<u>58.3</u>	12.8	<u>0.39</u>	2.0	52.4	3.75	2.3	2.3	3.8	4.5	184.0			
N93-0211	<u>58.6</u>	28.3	<u>71.0</u>	62.0	<u>15.4</u>	1.72	55.2	14.4	0.41	2.5	55.3	3.38	3.0	3.5	<u>4.5</u>	5.0	199.3			
Sharpshooter	<u>60.8</u>	30.6	55.5	59.8	14.8	<u>1.65</u>	55.1	<u>14.6</u>	<u>0.36</u>	2.3	55.6	2.75	2.5	3.5	3.8	5.0	196.5			
BZ987-331	54.5	30.1	54.3	40.0	14.6	1.83	45.4	14.1	0.46	<u>3.5</u>	56.9	5.50	3.0	3.0	3.3	5.0	<u>205.3</u>			
T801.93	56.4	<u>33.9</u>	60.5	63.4	14.8	1.89	50.6	13.6	0.56	<u>3.5</u>	<u>57.8</u>	4.25	3.0	<u>3.8</u>	3.0	<u>5.5</u>	<u>210.0</u>			
T1052	<u>58.6</u>	<u>32.2</u>	<u>62.4</u>	65.7	<u>15.3</u>	1.83	52.7	<u>14.7</u>	0.42	<u>3.3</u>	56.3	4.88	<u>3.5</u>	<u>4.3</u>	3.0	<u>5.5</u>	197.0			
NX95-5106	56.6	29.9	<u>62.4</u>	50.9	14.7	1.79	48.2	14.2	0.45	<u>3.3</u>	55.9	4.81	<u>3.5</u>	3.3	3.3	<u>5.5</u>	<u>206.5</u>			
SDM50005	57.5	29.9	55.0	55.6	14.8	1.83	49.0	14.4	0.42	2.3	55.5	3.19	2.5	3.5	3.3	4.3	189.8			
WA7802	55.3	30.5	55.8	51.9	14.4	1.74	52.8	13.6	0.41	<u>3.0</u>	54.8	4.00	<u>3.5</u>	<u>4.3</u>	3.3	5.0	197.5			
TX92U2317	56.5	30.5	<u>61.6</u>	58.3	13.8	<u>1.70</u>	50.5	12.9	0.45	2.5	54.4	4.25	2.5	<u>4.0</u>	3.8	4.6	190.3			
BW693	57.1	31.3	56.9	64.7	<u>15.3</u>	1.77	54.4	<u>14.9</u>	0.42	<u>3.0</u>	57.2	2.94	3.0	<u>4.3</u>	3.5	<u>5.3</u>	<u>203.8</u>			

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK
YELLOW

IRREG, THICK

HARSH

3

ELASTIC

DULL

OPEN, THICK

COARSE

6

BUCKY

BRIGHT WHITE

FINE

SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table of URN Averages:
Southeast Region

REGION: Southeast		FARGO, ND																Southeast Region					
VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)		FLOUR PRO (14 % mb)		MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	T Rating-----	C C	LOAF VOL (cc)				
					PRO	ASH	EXT	PRO	ASH														
Std. Butte 86	59.4	32.4	74.9	76.1	15.3	1.77	53.4	13.7	0.38	2.3	56.5	3.13	2.5	3.0	3.5	5.3		195.0					
Marquis	56.0	25.4	76.5	65.7	14.5	1.89	50.9	13.4	0.43	2.0	52.1	4.19	3.3	3.0	3.5	4.5		188.8					
Chris	58.4	27.3	74.6	72.6	15.8	1.80	52.2	15.1	0.40	2.5	56.4	3.50	3.0	3.0	3.8	4.8		202.8					
Era	57.8	26.8	69.1	69.3	13.9	1.82	53.2	12.6	0.42	2.0	53.1	4.50	3.5	3.5	3.5	4.5		188.0					
Stoa	58.3	28.5	75.6	68.0	15.2	1.94	49.5	14.1	0.40	3.0	56.6	4.31	3.0	3.0	3.5	5.3		203.3					
SD3249	61.7	29.5	74.4	63.8	15.3	1.80	51.6	14.5	0.36	3.3	55.9	4.56	3.8	3.0	3.0	4.8		200.5					
SD8108	60.3	30.4	64.2	52.6	14.7	1.75	46.3	13.6	0.34	3.0	54.4	6.00	3.5	3.8	4.0	4.5		198.3					
SD3219	60.6	30.3	72.0	67.1	14.1	1.76	51.9	12.4	0.37	2.0	52.5	6.56	3.0	3.5	4.3	4.5		179.0					
SD8119	59.5	31.5	69.8	75.5	14.9	1.83	55.9	13.4	0.41	2.5	56.6	3.31	3.0	3.3	3.8	5.0		189.0					
SD3310	61.4	32.7	62.8	48.6	15.2	1.74	52.9	14.4	0.32	2.0	56.2	3.63	3.0	3.5	4.0	5.0		198.5					
MN93413	56.8	29.0	68.2	70.1	13.9	1.83	53.2	12.3	0.43	2.5	54.2	4.06	2.5	3.5	3.8	5.0		189.0					
SBE0050	57.6	28.7	67.7	59.3	14.4	1.79	50.1	13.3	0.41	2.8	54.6	5.75	3.5	4.0	3.0	4.3		193.0					
MN94200	58.5	28.9	73.9	71.0	14.4	1.79	51.0	12.9	0.43	2.8	55.4	4.69	3.3	4.5	3.0	5.0		194.3					
MN94055	59.2	33.6	61.0	52.8	14.4	1.78	50.9	13.4	0.40	1.3	53.6	3.00	1.8	3.8	4.5	4.5		188.8					
SBF0402	59.5	32.5	60.4	59.5	15.4	1.83	56.8	14.3	0.39	3.0	56.0	4.94	3.8	3.5	3.5	5.0		196.5					
ND691	58.0	27.3	81.4	69.3	14.6	1.72	54.4	13.3	0.39	3.0	55.9	6.00	3.8	3.3	4.0	4.8		193.0					
ND694	61.3	29.2	75.1	69.8	15.5	1.77	52.1	14.3	0.38	2.8	56.3	4.19	3.0	4.8	3.5	5.3		199.3					
ND695	60.1	30.2	71.0	63.5	15.3	1.79	52.6	14.2	0.35	2.5	55.1	3.63	3.0	3.8	3.3	5.3		202.5					
ND704	61.2	31.5	69.3	68.0	15.1	1.71	54.1	13.9	0.36	2.5	55.8	4.75	3.0	3.5	4.0	5.3		202.8					

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LABTable of URN Averages:
Southeast Region

FARGO, ND

REGION: Southeast

REGION: Southeast																						
VARIETY	TW (lb/bu)	KWT (gr)	SKWCS		NIR		WHEAT		FLOUR		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	Rating-----						LOAF VOL. (cc)
			HARDNESS	INDEX	HARD-	NESS	PRO	ASH (14% mb)	EXT	(%)	PRO	ASH (14 % mb)				D	C	C	G	T		
MT9433	59.0	29.4	74.3	82.2	15.1	1.83	56.2	13.6	0.43	2.5	56.4	3.38	3.0	3.5	4.3	4.8	204.8					
MT9508	57.4	31.1	58.0	45.8	15.0	1.81	47.2	14.5	0.39	2.5	56.6	2.88	3.0	3.5	3.3	4.8	216.3					
B91-0228	59.9	31.9	69.9	72.6	15.1	1.99	50.0	13.9	0.44	2.5	55.3	6.56	3.0	4.8	3.3	5.0	196.8					
N93-0119	59.5	30.1	75.9	84.2	15.2	1.80	53.9	13.1	0.40	2.3	56.0	4.00	2.5	3.8	3.5	5.0	190.3					
N93-0136	59.6	29.0	65.3	60.8	13.6	1.76	56.3	12.2	0.38	2.0	52.1	4.88	3.0	4.0	4.3	3.4	172.5					
N93-0211	59.5	27.6	74.8	67.3	14.8	1.85	54.4	13.2	0.39	2.3	56.9	3.50	3.0	3.3	3.0	4.8	197.8					
Sharpshooter	59.9	31.9	59.3	60.8	14.8	1.70	55.5	14.0	0.35	2.5	57.3	3.13	2.5	3.5	3.3	5.0	195.8					
BZ987-331	56.3	34.2	49.9	40.7	14.1	1.85	46.6	13.2	0.37	3.5	56.6	7.50	3.8	3.3	3.5	4.8	197.3					
T801.93	58.7	34.7	63.2	71.7	15.0	1.92	49.7	13.3	0.53	3.3	57.4	6.13	3.8	3.5	3.5	5.5	218.0					
T1052	58.5	33.0	57.2	58.5	15.3	1.93	50.2	14.3	0.42	3.3	55.4	8.00	5.3	4.5	3.0	4.8	183.8					
NX95-5106	58.4	32.0	64.1	50.9	14.5	1.79	48.1	13.7	0.41	3.3	55.6	6.06	3.5	3.0	3.5	5.3	199.8					
SDM50005	57.9	29.1	58.6	54.6	14.7	1.90	52.3	13.9	0.40	2.8	56.0	3.63	3.0	3.5	3.3	4.8	202.5					
WA7802	54.9	29.6	57.8	53.8	14.2	1.78	48.8	13.2	0.38	3.3	56.3	5.19	3.0	3.5	3.5	5.3	198.5					
TX92U2317	56.1	30.1	61.4	52.1	14.0	1.77	46.7	12.6	0.46	2.3	54.4	5.13	3.5	3.8	4.3	5.0	191.3					
BW693	55.6	31.6	62.5	67.7	15.6	1.79	53.8	14.8	0.40	3.0	58.5	3.00	3.0	5.0	3.5	5.5	218.8					

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK
YELLOW

IRREG, THICK

HARSH

3

PLIABLE

GREY

DULL
OPEN, THICK

COARSE

6

BUCKY

BRIGHT WHITE

FINE

SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table of URN Averages:
Midwest Region

REGION: <i>Midwest</i>		FARGO, ND																MIDWEST REGION									
VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	G	T	LOAF VOL (cc)							
					PRO	ASH (14% mb)	EXT	PRO	ASH (14 % mb)	-----Rating-----																	
Std. Butte 86	58.6	32.5	60.9	75.2	16.5	1.92	55.5	15.8	0.44	2.8	59.1	2.56	2.8	3.8	3.3	5.5				212.0							
Marquis	57.9	28.8	<u>61.6</u>	67.3	15.8	<u>1.86</u>	52.5	15.2	<u>0.44</u>	2.5	56.2	3.50	<u>3.0</u>	<u>3.5</u>	<u>4.3</u>	4.8				209.5							
Chris	57.8	26.1	<u>63.2</u>	67.2	16.3	<u>1.82</u>	54.7	<u>15.8</u>	<u>0.40</u>	2.8	56.1	3.63	<u>3.0</u>	<u>3.0</u>	<u>3.8</u>	4.8				203.0							
Era	57.3	27.3	<u>63.5</u>	62.5	14.9	<u>1.82</u>	55.2	13.9	0.47	2.8	54.0	5.13	2.8	3.0	<u>4.3</u>	4.5				200.8							
Stoa	57.7	27.4	<u>67.3</u>	67.5	15.9	<u>1.78</u>	55.3	15.2	<u>0.43</u>	<u>3.3</u>	58.3	4.44	<u>3.0</u>	<u>3.0</u>	<u>3.5</u>	5.5				<u>214.5</u>							
SD3249	<u>60.8</u>	29.4	60.5	70.4	<u>16.8</u>	<u>1.86</u>	<u>56.8</u>	<u>16.2</u>	<u>0.40</u>	<u>3.3</u>	57.6	4.19	<u>3.0</u>	<u>4.0</u>	<u>3.5</u>	5.5				209.8							
SD8108	<u>59.3</u>	30.0	55.8	51.5	15.5	<u>1.76</u>	50.5	14.8	<u>0.36</u>	<u>3.8</u>	56.5	5.25	<u>3.0</u>	<u>3.0</u>	<u>4.5</u>	5.3				209.5							
SD3219	<u>60.4</u>	31.0	<u>65.1</u>	68.3	15.8	1.94	<u>56.4</u>	14.4	<u>0.44</u>	2.8	56.5	4.63	2.8	3.8	<u>4.0</u>	5.0				210.3							
SD8119	58.4	31.4	<u>62.5</u>	74.0	16.3	<u>1.87</u>	<u>56.1</u>	15.6	0.45	2.5	58.7	3.13	<u>3.0</u>	3.8	3.0	<u>5.8</u>				<u>216.8</u>							
SD3310	<u>60.3</u>	31.8	52.5	55.7	<u>17.3</u>	<u>1.89</u>	54.7	<u>17.1</u>	<u>0.38</u>	2.8	58.5	2.69	<u>3.0</u>	2.8	3.0	5.3				<u>214.8</u>							
MN93413	55.9	29.4	<u>61.9</u>	64.3	14.3	<u>1.76</u>	<u>56.8</u>	13.1	0.45	2.8	55.9	3.88	2.8	3.8	<u>4.5</u>	4.5				197.0							
SBE0050	57.1	27.5	<u>65.5</u>	56.0	15.7	<u>1.84</u>	51.1	15.3	0.46	<u>3.8</u>	57.4	5.25	2.8	<u>4.0</u>	<u>3.8</u>	4.8				<u>215.5</u>							
MN94200	<u>58.9</u>	29.4	<u>69.0</u>	72.6	15.6	<u>1.82</u>	<u>55.5</u>	14.7	<u>0.44</u>	<u>3.3</u>	57.6	4.19	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>	4.5				203.5							
MN94055	58.3	<u>33.3</u>	54.7	52.1	15.4	<u>1.83</u>	51.8	15.0	<u>0.42</u>	1.5	55.1	2.81	2.0	2.8	<u>4.3</u>	5.0				195.0							
SBF0402	<u>58.9</u>	<u>33.4</u>	53.8	62.3	<u>16.9</u>	<u>1.82</u>	55.2	<u>16.4</u>	<u>0.42</u>	<u>4.0</u>	59.0	4.31	<u>3.0</u>	<u>3.5</u>	<u>4.0</u>	5.5				<u>218.0</u>							
ND691	58.4	27.0	<u>71.1</u>	67.1	15.1	<u>1.64</u>	<u>57.1</u>	14.6	<u>0.43</u>	<u>3.0</u>	57.4	4.88	2.8	2.8	3.0	5.5				206.8							
ND694	<u>60.2</u>	27.6	<u>68.8</u>	70.9	16.2	<u>1.79</u>	<u>57.2</u>	15.4	<u>0.41</u>	<u>3.8</u>	58.3	4.06	<u>3.0</u>	<u>4.5</u>	<u>4.0</u>	<u>5.8</u>				207.5							
ND695	<u>60.2</u>	29.9	<u>62.8</u>	64.4	15.8	<u>1.75</u>	54.3	15.2	<u>0.38</u>	2.8	56.5	3.69	<u>3.0</u>	<u>3.5</u>	<u>3.5</u>	<u>5.8</u>				209.8							
ND704	<u>60.6</u>	31.8	<u>62.5</u>	66.8	16.0	<u>1.80</u>	<u>58.7</u>	15.5	<u>0.39</u>	<u>3.8</u>	57.8	4.13	<u>3.0</u>	<u>3.5</u>	3.0	5.0				<u>217.8</u>							

REGION: Midwest		FARGO, ND																					
VARIETY	TW (lb/bu)	KWT (gr)	SKWCS		NIR		WHEAT		FLOUR		FLOUR		MIX		BAKE		MIX TIME (min)	D	C	C	G	T	LOAF VOL (cc)
			HARDNESS INDEX	HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	PAT	ABS												
MT9433	59.4	31.8	63.9	81.2	15.6	1.80	59.1	14.6	0.44	2.8	3.31	57.7		3.0	4.0	4.0	5.3					206.5	
MT9508	58.1	34.3	48.0	49.4	16.8	1.86	53.3	16.5	0.41	3.0	2.44	59.3		3.0	4.3	3.5	5.3					223.3	
B91-0228	60.3	33.1	61.1	70.3	16.5	1.94	55.7	15.8	0.47	3.5	5.50	57.7		3.0	4.0	4.0	5.5					206.5	
N93-0119	59.3	31.8	69.7	85.9	16.4	1.83	57.0	14.9	0.45	2.8	3.19	58.2		3.0	3.0	4.5	5.3					213.3	
N93-0136	59.5	28.7	61.8	58.5	14.9	1.77	59.1	14.0	0.42	2.3	4.13	55.3		2.3	3.3	3.8	4.8					191.8	
N93-0211	59.5	30.0	64.3	70.6	16.2	1.89	59.2	14.9	0.44	2.8	3.50	57.2		2.8	4.3	3.0	5.0					204.8	
Sharpshooter	59.3	34.6	43.0	50.5	16.5	1.83	52.5	15.9	0.39	3.5	4.00	60.2		3.0	4.0	3.0	5.5					214.0	
BZ987-331	56.9	37.1	45.0	51.0	15.9	1.88	51.8	15.2	0.45	5.0	5.75	60.4		2.8	3.5	3.3	5.3					218.5	
T801.93	58.0	36.9	54.9	69.5	16.4	1.97	53.6	15.4	0.52	4.3	5.25	60.0		3.0	4.3	3.0	5.8					215.8	
T1052	58.1	35.5	53.4	56.9	16.7	1.96	53.0	16.1	0.46	4.0	5.00	58.8		3.8	4.3	3.8	5.8					208.3	
NX95-5106	58.2	35.2	56.0	49.1	15.3	1.92	50.1	14.5	0.43	3.8	5.50	58.3		3.0	3.5	3.3	5.5					207.0	
SDM50005	58.6	32.9	53.2	54.4	15.7	1.85	55.0	15.1	0.44	3.3	3.88	57.1		3.0	4.3	3.5	5.0					199.5	
WA7802	57.6	33.1	50.1	55.5	15.4	1.79	57.4	14.5	0.40	3.0	4.38	57.2		3.0	3.0	3.3	5.0					209.8	
TX92U2317	57.1	31.2	57.2	54.1	15.1	1.76	55.1	13.8	0.43	2.3	3.88	56.4		2.8	3.0	4.0	5.0					203.3	
BW693	56.7	29.1	56.2	62.3	16.5	1.93	57.0	16.0	0.44	3.3	2.88	59.7		3.0	4.5	3.0	5.3					229.8	

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

3

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

6

BUCKY

BRIGHT WHITE

FINE

SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LABTable of URN Averages:
West RegionREGION: *West*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT		FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	-----Rating-----								LOAF VOL (cc)
					PRO	ASH (14% mb)	FLOUR EXT (%)	PRO				ASH (14 % mb)	D	C	C	G	T			
Std. Butte 86	61.2	36.5	63.1	70.2	12.9	1.48	53.5	11.5	0.35	2.5	56.4	3.38	1.5	2.5	3.0	2.5	159.0			
Marquis	60.6	33.1	59.8	65.9	13.4	1.58	52.1	12.6	0.38	2.0	55.6	3.25	1.5	3.0	5.5	2.8	166.5			
CI 3651	58.0	27.8	58.3	73.9	16.0	1.54	54.5	15.1	0.40	2.5	55.8	3.75	3.0	3.0	4.0	5.5	191.0			
Chris	60.6	30.8	60.2	68.7	13.5	1.60	51.8	12.8	0.36	2.0	54.4	3.50	1.5	3.5	5.5	2.8	167.0			
CI 13751	57.4	25.3	58.7	70.3	15.3	1.53	55.9	14.6	0.36	2.5	55.1	4.25	2.5	3.5	4.0	5.5	183.0			
CI 13986	56.6	26.4	65.7	63.9	14.2	1.59	52.1	13.0	0.41	2.5	53.9	5.75	4.5	3.0	4.0	3.3	176.0			
Era	58.9	30.9	63.5	65.1	12.0	1.49	52.0	10.3	0.38	1.5	53.0	4.75	1.5	2.5	4.5	2.5	153.5			
ND582	57.4	27.3	64.6	58.0	15.2	1.51	56.6	14.5	0.36	4.0	56.9	5.50	4.5	3.0	4.0	5.0	192.5			
Stoa	61.1	34.1	65.4	69.7	12.9	1.48	53.6	11.6	0.33	2.0	56.0	3.75	1.5	3.5	4.5	4.0	172.0			
ND597	58.3	30.2	61.0	66.5	14.9	1.40	56.9	13.7	0.36	3.0	56.5	4.50	3.0	3.0	3.0	5.5	187.0			
SD3249	60.1	31.1	56.5	64.0	14.2	1.51	56.2	13.6	0.35	3.0	57.3	3.94	2.5	2.5	3.5	4.3	180.0			
SD8108	60.3	33.5	48.5	47.0	13.2	1.40	49.0	12.5	0.32	2.8	54.3	6.19	4.0	3.0	4.3	4.8	169.3			
SD3219	61.5	31.9	63.0	66.2	13.1	1.44	55.4	11.6	0.38	2.3	54.1	5.75	1.8	2.3	4.3	3.8	162.8			
SD8119	58.7	32.2	60.5	63.9	13.7	1.50	57.3	12.5	0.39	2.3	56.8	3.75	2.3	3.0	4.3	4.5	169.0			
SD3310	60.8	32.4	49.3	47.0	13.7	1.47	52.8	13.4	0.35	2.3	56.8	3.56	2.3	2.3	4.0	4.8	178.8			
MN93413	57.7	32.1	58.0	62.5	12.7	1.37	55.6	11.2	0.39	2.3	55.2	3.94	2.3	3.5	4.5	4.0	166.8			
SBE0050	58.8	30.9	61.2	52.9	12.8	1.40	50.5	11.8	0.37	2.8	54.8	6.25	3.0	3.3	4.5	3.8	166.3			
MN94200	58.9	29.8	68.9	74.8	13.5	1.49	51.0	12.1	0.39	2.5	56.0	4.69	2.3	3.8	4.5	4.3	170.0			
MN94055	59.3	33.9	53.0	62.7	13.4	1.49	52.3	12.6	0.34	1.8	55.0	2.81	1.8	2.5	3.5	4.8	168.0			

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LABTable of URN Averages:
West Region

REGION: <i>West</i>		FARGO, ND										West Region									
VARIETY	TW (lb/bu)	KWT (gr)	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	G	C	T	LOAF VOL (cc)		
					PRO	ASH (14% mb)		PRO	ASH (14 % mb)											-----Rating-----	
SBF0402	59.3	33.6	53.5	55.1	<u>14.1</u>	<u>1.47</u>	<u>55.5</u>	<u>13.4</u>	0.36	<u>3.5</u>	<u>57.0</u>	6.00	<u>3.0</u>	<u>3.3</u>	<u>4.5</u>	<u>3.9</u>			<u>179.0</u>		
ND691	58.3	28.0	<u>63.7</u>	68.0	<u>13.6</u>	<u>1.37</u>	<u>58.9</u>	<u>12.7</u>	0.38	<u>3.0</u>	<u>57.5</u>	4.94	<u>2.8</u>	<u>3.0</u>	<u>3.5</u>	<u>4.3</u>			<u>182.8</u>		
ND694	60.7	30.7	62.5	67.5	<u>14.1</u>	<u>1.46</u>	<u>56.7</u>	<u>13.1</u>	0.37	2.5	<u>56.7</u>	4.06	<u>2.3</u>	<u>4.3</u>	<u>4.3</u>	<u>4.4</u>			<u>182.3</u>		
ND695	60.7	33.3	55.8	58.6	<u>13.9</u>	<u>1.38</u>	<u>53.7</u>	<u>12.9</u>	<u>0.34</u>	2.3	<u>56.8</u>	3.38	<u>2.3</u>	<u>3.5</u>	<u>3.8</u>	<u>4.4</u>			<u>181.3</u>		
ND704	60.0	31.1	61.7	60.1	<u>13.6</u>	<u>1.45</u>	<u>55.5</u>	<u>12.6</u>	0.37	2.5	56.3	4.38	<u>2.3</u>	<u>3.3</u>	<u>3.8</u>	<u>4.5</u>			<u>183.5</u>		
MT9433	60.5	34.3	60.5	<u>82.5</u>	<u>14.7</u>	1.50	<u>59.0</u>	<u>13.4</u>	0.38	2.5	<u>58.0</u>	3.06	<u>2.5</u>	<u>3.5</u>	<u>3.8</u>	<u>5.0</u>			<u>185.8</u>		
MT9508	60.6	36.4	47.6	52.4	<u>14.0</u>	<u>1.44</u>	<u>54.3</u>	<u>13.5</u>	<u>0.34</u>	2.3	<u>57.6</u>	2.56	<u>2.5</u>	<u>3.5</u>	<u>4.3</u>	<u>5.3</u>			<u>187.8</u>		
B91-0228	<u>62.0</u>	<u>37.7</u>	59.5	<u>72.5</u>	<u>14.4</u>	1.57	<u>53.9</u>	<u>13.4</u>	0.40	<u>3.3</u>	<u>57.8</u>	4.94	<u>3.5</u>	<u>4.3</u>	3.0	<u>5.0</u>			<u>177.8</u>		
N93-0119	59.4	31.0	<u>66.5</u>	<u>82.6</u>	<u>13.7</u>	1.50	<u>54.7</u>	<u>11.8</u>	0.41	2.3	56.4	4.44	<u>2.3</u>	<u>2.5</u>	<u>3.8</u>	<u>3.8</u>			<u>173.3</u>		
N93-0136	59.9	30.9	57.5	60.0	12.7	<u>1.45</u>	<u>56.3</u>	11.5	0.35	2.3	53.6	4.63	<u>2.3</u>	<u>3.0</u>	<u>5.5</u>	<u>3.8</u>			<u>163.5</u>		
N93-0211	60.2	31.1	<u>63.1</u>	68.9	<u>14.0</u>	1.53	<u>55.8</u>	<u>12.5</u>	0.38	2.5	<u>57.1</u>	3.75	<u>2.3</u>	<u>3.5</u>	<u>4.0</u>	<u>5.0</u>			<u>174.5</u>		
FA994601	60.9	31.6	54.3	51.8	<u>14.2</u>	<u>1.39</u>	<u>55.8</u>	<u>13.6</u>	0.35	<u>3.0</u>	<u>56.8</u>	3.50	<u>3.0</u>	<u>3.0</u>	<u>4.0</u>	<u>5.5</u>			<u>183.0</u>		
Sharpshooter	<u>63.0</u>	36.2	52.6	56.3	<u>13.2</u>	<u>1.42</u>	51.9	<u>12.4</u>	<u>0.31</u>	2.0	<u>58.5</u>	3.50	<u>2.0</u>	<u>3.0</u>	3.0	<u>5.0</u>			<u>175.0</u>		
BZ987-31	56.3	33.5	50.1	41.3	<u>14.3</u>	<u>1.48</u>	51.5	<u>13.6</u>	0.36	<u>4.5</u>	<u>58.0</u>	7.50	<u>3.0</u>	<u>3.0</u>	3.0	<u>6.0</u>			<u>196.5</u>		
BZ987-331	60.4	<u>43.1</u>	45.8	49.0	11.8	<u>1.40</u>	47.8	11.0	<u>0.34</u>	2.5	<u>58.4</u>	4.75	<u>2.0</u>	1.0	3.0	<u>3.3</u>			<u>167.0</u>		
T80193	60.4	<u>41.0</u>	55.3	<u>73.1</u>	<u>13.4</u>	1.50	52.3	<u>12.0</u>	0.44	<u>2.8</u>	<u>58.0</u>	6.19	<u>2.5</u>	<u>3.3</u>	<u>4.0</u>	<u>4.6</u>			<u>183.5</u>		
T1052	58.6	35.8	56.1	60.5	<u>14.5</u>	1.58	53.1	<u>13.7</u>	0.39	<u>3.0</u>	<u>57.9</u>	6.06	<u>3.5</u>	<u>4.0</u>	<u>3.8</u>	<u>5.5</u>			<u>185.8</u>		
NX95-5106	<u>61.6</u>	<u>39.3</u>	55.7	59.5	12.0	<u>1.44</u>	51.9	10.6	<u>0.34</u>	2.0	<u>56.9</u>	4.25	<u>2.0</u>	<u>4.0</u>	<u>3.5</u>	<u>4.0</u>			<u>161.5</u>		
NX955106	56.9	30.5	61.8	50.4	<u>15.1</u>	1.52	49.4	<u>14.6</u>	0.39	<u>4.5</u>	<u>57.3</u>	8.00	<u>3.0</u>	<u>3.5</u>	<u>4.0</u>	<u>6.0</u>			<u>190.5</u>		
SDM50005	59.3	33.6	53.9	57.1	<u>14.0</u>	1.51	<u>53.9</u>	<u>13.4</u>	0.37	2.3	<u>56.8</u>	3.44	<u>2.3</u>	<u>3.3</u>	<u>3.3</u>	<u>5.0</u>			<u>183.8</u>		

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table of URN Averages:
West Region

REGION: *West*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	SKWCS		NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX		BAKE		MIX		D		C		C		LOAF VOL (cc)
			HARDNESS	INDEX		PRO	ASH (14% mb)		PRO	ASH (14 % mb)	PAT	ABS	TIME (min)	ABS	PAT	TIME (min)	C	C	C	G	T	C	
WA7802	58.8	36.3	52.8	52.8	55.6	13.4	1.46	52.7	12.4	0.33	2.3	56.6	4.63	2.3	3.8	3.0	3.0	3.0	3.0	5.0	5.0	5.0	183.3
TX922U231	56.5	28.8	60.2	51.8	51.8	14.8	1.54	47.9	13.4	0.41	2.0	55.6	4.50	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0	208.0
TX92U231	55.0	28.4	59.3	52.0	52.0	15.4	1.64	47.9	14.7	0.39	3.0	57.1	4.00	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0	200.0
TX92U2317	58.6	33.5	62.1	57.1	57.1	11.8	1.53	48.9	10.3	0.39	1.5	54.1	5.13	1.5	4.0	3.5	4.0	3.5	4.0	4.0	4.0	4.0	159.5
BW693	58.9	34.1	52.3	67.3	67.3	14.4	1.50	54.4	13.5	0.36	2.8	57.2	3.38	2.3	3.5	5.3	5.3	5.3	5.3	5.3	5.3	5.3	183.5

RATINGS:	0			3			6		
	STICKY-WEAK			PLIABLE			ELASTIC		
	DOUGH CHAR (DC):			GREY			DULL		
	CRUMB COLOR (CC):			YELLOW			CREAMY		
	CRUMB GRAIN (CG):			IRREG, THICK			OPEN, THICK		
	CRUMB TEXTURE (CT):			HARSH			COARSE		
							FINE		
							BRIGHT WHITE		
							SILKY		

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 15

LOCATION: Brookings, SD

NURSERY: AYT

FARGO, ND

NURSERY:		AYI		SKWCS HARDNESS										NIR		WHEAT		FLOUR		FLOUR		MIX		BAKE		MIX		LOAF	
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION				HARD- NESS	PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14% mb)	ASH (14% mb)	ABS	PAT	ABS	TIME (min)	C	D	C	C	G	T	VOL (cc)				
					A	B	C	D																		INDEX			
CHRIS	59.0	28.7	68	5	3	6	19	72	74.3	65	15.0	1.71	65.3	14.8	0.44	62.5	4	62.5	2.75	3	3	3	3	5	5	202			
BUTTE 86	60.6	33.8	88	1	1	9	26	64	68.7	77	14.2	1.83	62.9	12.9	0.42	63.1	3	63.0	2.50	3	4	5	4	5	4	182			
SHARP	61.3	32.1	83	2	4	20	27	49	61.5	63	14.0	1.81	65.7	13.7	0.40	62.7	3	60.8	2.50	3	3	3	3	4	4	180			
2375	60.1	31.3	70	1	3	11	24	62	72.7	69	13.4	1.81	65.1	12.3	0.42	59.6	4	61.0	3.75	3	3	3	3	4	4	173			
RUSS	60.5	32.7	81	3	2	10	31	57	63.9	74	13.6	1.75	65.6	12.6	0.45	61.8	3	62.0	3.75	3	4	3	5	5	5	178			
OXEN	59.1	28.7	65	3	1	4	23	72	69.6	69	14.5	1.65	68.1	13.5	0.39	62.5	7	62.5	4.25	3	3	5	4	4	4	185			
FORGE	60.5	30.2	67	5	3	5	28	64	65.7	67	13.7	1.85	63.6	12.9	0.40	58.2	3	58.5	3.50	3	3	5	4	4	4	178			
SD3219	61.6	32.3	77	4	3	11	27	59	66.3	64	12.9	1.67	61.1	11.3	0.42	55.5	3	57.0	5.00	3	4	4	5	5	5	162			
SD3249	61.7	29.9	67	4	2	8	20	70	73.9	66	14.8	1.81	64.7	13.9	0.40	60.5	4	60.5	4.50	3	4	3	5	5	5	191			
SD8108	59.8	30.6	69	5	3	11	32	54	63.9	63	14.0	1.78	62.2	13.6	0.38	57.9	5	60.0	4.50	4	4	3	4	4	4	178			
SD8119	59.8	33.8	86	3	2	12	36	50	63.0	72	13.5	1.82	64.8	12.4	0.42	60.3	3	58.5	3.50	4	3	3	3	4	4	160			
SD3310	61.3	34.6	83	2	8	29	26	37	55.8	51	14.2	1.69	64.5	13.5	0.36	60.0	3	60.0	3.50	3	3	3	3	4	4	188			
SD3333	58.3	28.1	68	4	2	11	24	63	68.6	58	13.9	1.79	59.5	13.0	0.38	62.5	5	62.5	6.00	5	3	6	5	5	5	168			
SD3335	61.1	35.7	81	3	2	13	32	53	63.6	73	14.2	1.82	64.2	13.0	0.42	61.8	2	62.0	3.00	3	4	5	5	5	5	200			
SD3337	59.5	34.0	75	3	2	11	25	62	66.7	81	14.3	1.80	63.1	13.9	0.41	60.0	4	62.5	4.75	3	3	3	5	5	5	188			
SD3345	61.2	32.5	79	2	0	3	21	76	73.9	86	14.7	1.91	64.5	13.7	0.42	62.5	3	63.5	3.00	3	3	3	5	5	5	185			
SD3348	59.9	29.6	68	5	26	25	23	26	47.9	64	14.3	1.68	62.5	13.7	0.34	60.8	4	60.8	5.00	4	3	3	5	5	5	192			
SD3355	58.0	29.1	60	6	1	5	16	78	74.5	65	14.1	1.76	63.1	13.2	0.46	59.6	3	60.5	3.00	3	3	3	4	4	4	182			
SD3356	61.3	25.9	59	6	0	1	9	90	85.4	73	14.9	1.80	65.4	14.2	0.40	62.5	5	62.5	3.75	3	3	3	4	4	4	188			
SD3357	62.1	33.2	82	1	2	16	29	53	64.2	63	14.6	1.90	62.4	13.6	0.38	60.8	3	62.5	3.50	3	3	3	5	5	5	192			

1997 Spring Wheat Quality Report

LOCATION: Brookings, SD
NURSERY: AYT

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 15 (cont)

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	T	VOL (cc)
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT	PRO	ASH (14 % mb)										
SD3367	60.6	32.2	82	2	1	9	26	64	68.0	67	14.4	1.74	62.0	13.5	0.39	61.4	3	62.8	2.25	3	3	3	4	182	
SD3369	62.2	32.4	71	2	5	19	24	52	64.2	73	15.1	1.74	61.2	13.8	0.38	61.1	3	59.0	2.25	3	3	3	5	190	
SD3390	60.5	29.8	66	4	1	5	17	77	74.3	69	13.6	1.88	59.7	13.0	0.39	60.8	4	62.0	2.75	3	3	3	5	182	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

3

ELASTIC

DULL

CREAMY

BUCKY

6

BRIGHT WHITE

FINE

SILKY

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 16

LOCATION: Crookston, MN

NURSERY: AYT

FARGO, ND

NURSERY:		AYT		SKWCS HARDNESS										NIR		WHEAT		FLOUR		FLOUR		MIX		BAKE		MIX		LOAF	
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION			HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14% mb)	MIX ABS	MIX PAT	ABS	TIME (min)	D	C	C	C	G	T	C	C	C	C	LOAF VOL (cc)	
					A	B	C																						D
CHRIS	58.5	26.0	61	3	1	3	7	89	101.7	64	15.7	1.88	66.8	15.1	0.56	60.0	4	60.0	2.75	3	3	6	5	5	210				
2375	59.7	32.2	63	4	1	5	18	76	80.8	67	14.4	1.78	68.4	13.8	0.49	58.6	2	58.8	3.00	2	3	5	4	4	202				
VERDE	57.2	28.1	68	3	1	4	20	75	76.2	71	14.3	1.80	70.1	13.4	0.46	56.5	2	57.5	3.00	2	3	5	4	4	195				
NORM	55.2	29.2	59	4	3	8	19	70	72.4	64	13.6	1.84	65.3	13.3	0.51	58.2	3	58.5	3.25	2	3	5	4	4	190				
MN93262	58.1	31.8	62	3	2	9	25	64	72.1	62	14.4	1.63	69.0	13.5	0.49	60.0	3	62.0	3.00	3	3	5	4	4	202				
MN93377	58.6	29.2	60	5	0	2	12	86	84.5	63	14.3	1.71	64.2	12.4	0.47	55.3	2	61.0	4.00	2	3	3	4	4	202				
MN94053	58.6	28.8	54	6	3	8	15	74	85.2	48	14.3	1.97	59.0	13.2	0.56	55.8	2	60.0	3.00	2	4	3	4	4	190				
MN94151	57.8	28.8	65	5	1	5	20	74	76.0	59	13.9	1.81	62.3	12.9	0.47	55.5	2	55.5	2.25	2	4	5	4	4	202				
MN95002	60.0	29.1	51	5	1	10	18	71	81.0	60	14.7	1.96	63.7	14.0	0.42	61.8	3	58.0	2.75	3	3	5	5	5	208				
MN95023	58.2	30.0	66	4	1	7	19	73	76.8	56	13.4	1.75	66.2	12.8	0.42	62.1	3	58.0	2.75	3	3	3	5	5	198				
MN95051	57.8	26.7	44	6	1	2	8	89	90.5	60	13.6	1.59	64.0	13.2	0.46	62.7	3	58.8	3.25	3	3	4	5	5	192				
MN95084	59.1	28.7	64	4	1	3	16	80	82.5	66	13.3	1.87	64.2	12.0	0.59	55.8	3	60.0	4.25	3	3	3	5	5	182				
MN95102	57.7	28.4	60	5	1	2	7	90	99.2	72	14.8	1.91	64.8	14.0	0.61	64.4	4	61.0	1.75	2	3	3	5	5	175				
MN95124	59.4	27.0	39	7	34	14	10	42	55.7	27	13.3	1.99	41.2	12.1	0.46	56.9	3	58.8	3.00	2	5	3	4	4	172				
MN95201	58.0	29.7	64	4	26	25	17	32	51.2	57	14.6	1.87	66.2	13.5	0.43	59.3	3	58.5	2.50	2	4	3	5	5	191				
MN95211	59.3	31.3	77	2	5	18	22	55	67.7	77	14.7	1.79	61.5	13.7	0.47	60.8	4	56.8	3.00	3	3	5	6	6	212				
MN95222	58.6	29.8	66	3	6	7	22	65	69.4	61	14.7	1.71	65.1	13.7	0.43	60.8	3	58.8	2.50	3	4	3	6	6	190				
MN95223	57.8	27.7	55	5	3	13	18	66	72.8	56	14.4	1.88	61.7	13.7	0.41	60.0	3	58.5	2.75	3	4	5	5	5	192				
MN95229	59.6	30.2	61	5	1	2	15	82	86.0	70	15.2	1.77	61.9	14.0	0.44	60.0	3	60.5	2.50	3	3	5	6	6	209				
MN95230	56.4	26.3	55	5	3	9	18	70	78.0	46	13.9	1.94	62.3	12.8	0.38	57.6	3	57.5	3.50	3	3	3	5	5	205				

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 16 (cont)

LOCATION: Crookston, MN
NURSERY: AYT

FARGO, ND

NURSERY		AYI		SKWCS HARDNESS										NIR		WHEAT		FLOUR		FLOUR		MIX		BAKE		MIX		TIME		D		C		C		LOAF																																																																																																																																																																																																																																																																																																																																																																																																												
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	FLOUR		PRO	ASH (14 % mb)	MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T	C G	C T

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:	0						3			6		
	DOUGH CHAR (DC):			STICKY-WEAK			PLIABLE			ELASTIC		
	CRUMB COLOR (CC):			YELLOW			GREY			DULL		
	CRUMB GRAIN (CG):			IRREG, THICK			OPEN, THICK			COARSE		
	CRUMB TEXTURE (CT):			HARSH						BUCKY		
										BRIGHT WHITE		
										FINE		
										SILKY		

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 17

LOCATION: Day Co.
NURSERY: AYT

FARGO, ND

NURSERY:		AYT																						
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					DISTRIBUTION					PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14% mb)										
					A	B	C	D							INDEX									
CHRIS	58.2	25.2	53	5	0	2	11	87	85.7	62	14.0	1.74	62.0	13.6	0.39	60.3	4	59.5	3.00	3	3	5	5	200
BUTTE 86	60.9	31.1	80	1	1	3	15	81	82.5	70	13.1	1.59	65.6	11.7	0.38	59.0	3	59.0	3.00	3	3	3	4	178
SHARP	61.6	30.0	77	1	1	8	25	66	73.7	56	12.6	1.60	64.5	12.3	0.35	60.0	3	58.0	2.75	3	3	5	4	175
2375	59.8	30.9	62	2	2	4	18	76	81.5	62	13.0	1.69	63.6	11.8	0.40	58.2	3	58.5	3.25	3	3	5	4	175
RUSS	59.5	30.9	77	2	0	8	22	70	70.9	74	13.1	1.59	63.3	12.2	0.40	59.3	4	59.0	3.75	3	3	3	4	188
OXEN	58.6	28.7	67	2	3	9	24	64	70.1	62	12.9	1.65	67.6	11.8	0.35	60.3	4	58.5	3.50	3	3	5	4	183
FORGE	61.3	29.7	76	2	3	13	25	59	65.6	52	11.6	1.65	64.7	10.6	0.33	55.3	2	53.0	3.50	3	3	5	4	183
SD3219	63.0	29.7	72	3	1	4	21	74	72.2	65	11.4	1.61	65.1	10.1	0.38	53.2	2	56.5	3.50	3	3	3	5	173
SD3249	61.4	29.1	70	2	2	6	24	68	79.0	60	12.5	1.67	62.6	11.5	0.37	55.8	3	56.0	3.50	3	3	3	4	173
SD8108	62.0	29.6	68	2	5	13	28	54	66.6	43	12.9	1.57	59.0	12.0	0.34	56.9	5	59.5	5.25	3	5	4	5	198
SD8119	60.3	30.9	81	2	2	9	25	64	67.6	68	12.8	1.59	55.1	11.7	0.37	56.5	2	56.5	3.50	3	3	3	5	185
SD3310	62.1	29.7	83	2	6	19	24	51	62.3	53	12.9	1.75	60.1	12.3	0.35	57.6	2	56.0	4.00	3	3	5	5	191
SD3333	59.5	27.7	67	4	1	10	22	67	71.6	53	12.7	1.58	55.6	11.9	0.34	59.3	4	58.5	6.00	4	3	3	5	193
SD3335	60.6	34.9	85	2	3	15	34	48	64.5	68	12.5	1.64	60.3	11.5	0.38	56.2	2	56.5	2.75	2	3	5	4	171
SD3337	60.5	31.1	76	2	1	3	22	74	77.1	79	14.3	1.48	58.8	13.4	0.37	60.3	5	60.5	4.25	3	3	3	5	208
SD3345	60.5	28.8	75	2	0	3	11	86	85.3	68	12.9	1.60	60.7	11.8	0.38	59.0	3	59.0	3.25	3	3	5	5	192
SD3348	59.4	27.8	64	4	2	10	28	60	69.7	57	13.1	1.43	64.0	12.7	0.33	58.6	4	56.8	4.00	3	3	6	5	198
SD3355	60.2	29.8	63	4	1	6	21	72	73.7	68	12.9	1.55	61.8	11.8	0.39	56.2	3	60.5	3.25	2	3	5	5	195
SD3356	59.0	25.7	43	4	1	1	8	90	89.0	73	14.3	1.71	63.3	13.5	0.39	61.8	4	60.0	3.50	3	2	5	5	208
SD3357	59.4	32.3	84	1	2	10	28	60	70.5	64	13.6	1.67	59.3	13.1	0.37	58.6	3	57.5	2.75	3	3	3	5	210

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 17 (cont)

LOCATION: Day Co.
NURSERY: AYT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	-----Rating-----					LOAF VOL (cc)	
					DISTRIBUTION					PRO	ASH (14% mb)	FLOUR EXT (%)	FLOUR					D	C	C	C	T		
					A	B	C	D					INDEX											PRO
SD3367	59.9	28.2	73	2	2	5	24	69	74.1	54	12.6	1.53	60.6	11.9	0.37	58.6	2	56.8	2.75	3	4	5	5	192
SD3369	61.2	30.1	71	2	0	3	16	81	82.0	69	14.1	1.63	59.8	12.7	0.35	56.2	2	56.5	2.50	3	3	3	5	197
SD3390	61.6	28.7	66	2	1	3	17	79	77.2	57	13.5	1.57	59.5	12.4	0.35	58.2	3	60.0	3.00	3	3	4	5	200

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

3

6

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BUCKY

BRIGHT WHITE

FINE

SILKY

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 18

LOCATION: Grotton, SD
NURSERY: AYT

FARGO, ND

NURSERY:		AYT		SKWCS HARDNESS														NIR		WHEAT		FLOUR		FLOUR		MIX		BAKE		MIX		D		C		LOAF	
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION				HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	ABS	PAT	ABS	TIME (min)	C	C	G	T	C	G	C	T	C	G	C	T	C	LOAF VOL (cc)					
					A	B	C	D																									INDEX	INDEX			
CHRIS	56.4	22.6	23	8	0	2	8	90	79.2	60	15.6	1.84	62.6	15.0	0.41	58.2	4	58.5	3.00	3	3	3	3	3	3	3	3	3	3	3	6	205					
BUTTE 86	58.8	28.7	60	2	1	3	11	85	78.6	74	15.0	1.73	59.8	14.0	0.42	59.3	3	59.0	3.25	3	3	3	3	3	3	3	3	3	3	5	6	198					
SHARP	61.0	28.8	63	2	3	13	28	56	65.5	58	15.0	1.74	57.1	14.5	0.37	60.0	2	60.0	2.50	3	3	3	3	3	3	3	3	3	3	5	6	192					
2375	58.8	27.3	36	5	2	6	25	67	69.4	64	14.6	1.71	59.1	14.0	0.43	59.0	3	59.0	2.75	2	3	3	3	3	3	3	3	3	3	5	6	202					
RUSS	59.4	29.8	74	1	1	2	16	81	71.4	65	15.0	1.70	60.1	14.3	0.41	60.8	3	60.8	3.25	3	4	6	6	6	6	6	6	6	6	6	6	211					
OXEN	58.8	26.9	56	4	1	6	21	72	69.3	70	14.5	1.74	61.6	13.6	0.35	59.3	3	59.0	3.50	3	5	5	5	5	5	5	5	5	5	5	6	210					
FORGE	60.3	28.2	56	2	2	8	25	65	66.5	51	14.6	1.72	51.6	13.9	0.35	60.3	3	60.5	3.00	3	3	3	3	3	3	3	3	3	5	6	212						
SD3219	59.9	28.8	50	4	2	7	17	74	68.0	64	13.9	1.58	51.9	12.8	0.40	59.6	5	59.5	4.50	3	3	3	3	3	3	3	3	3	5	6	190						
SD3249	61.8	28.3	55	2	0	6	23	71	68.7	63	15.0	1.70	60.1	14.3	0.38	60.8	4	58.8	2.75	3	3	3	3	3	3	3	3	3	5	6	213						
SD8108	60.9	30.5	65	2	2	11	32	55	61.1	57	14.6	1.75	55.8	14.2	0.35	59.0	4	59.0	3.00	3	3	3	3	3	3	3	3	3	5	6	208						
SD8119	59.1	29.4	71	2	1	3	14	82	70.9	73	15.0	1.78	60.6	14.5	0.42	61.8	3	62.0	2.75	3	4	5	5	5	5	5	5	5	5	5	5	198					
SD3310	61.7	29.8	76	0	21	31	25	23	46.8	43	15.3	1.56	55.6	14.9	0.35	59.6	3	59.5	2.50	3	4	5	6	6	6	6	6	6	6	6	6	221					
SD3333	58.6	25.3	51	5	2	8	24	66	66.2	56	14.4	1.70	58.5	13.8	0.36	65.4	5	61.5	4.50	4	4	3	6	6	6	6	6	6	6	6	6	217					
SD3335	60.7	32.6	78	2	1	4	18	77	68.5	72	14.8	1.58	62.6	13.8	0.40	60.8	3	60.8	2.50	3	4	5	6	6	6	6	6	6	6	6	6	200					
SD3337	59.3	31.7	77	2	0	3	20	77	72.6	74	16.3	1.65	59.3	15.4	0.39	60.0	3	60.0	3.50	3	4	5	6	6	6	6	6	6	6	6	6	220					
SD3345	61.4	28.2	65	2	1	1	11	87	75.4	75	15.3	1.73	59.8	14.9	0.40	61.8	4	58.0	3.25	3	3	3	5	6	6	6	6	6	6	6	6	216					
SD3348	58.6	26.3	55	3	2	7	21	70	67.8	55	14.8	1.65	62.1	14.1	0.38	60.3	3	57.0	3.50	3	4	3	6	6	6	6	6	6	6	6	6	218					
SD3355	59.4	27.5	60	4	0	2	12	86	74.7	69	13.7	1.54	62.3	12.6	0.40	55.5	2	56.5	2.75	2	4	5	6	6	6	6	6	6	6	6	6	189					
SD3356	60.1	24.0	37	5	0	1	7	92	81.6	70	14.8	1.65	64.3	13.9	0.36	61.8	4	59.5	3.75	3	3	3	3	6	6	6	6	6	6	6	6	214					
SD3357	59.9	31.6	75	1	5	13	34	48	59.8	61	15.2	1.81	57.0	15.1	0.35	59.6	3	58.5	2.75	3	3	3	3	6	6	6	6	6	6	6	6	220					

1997 Spring Wheat Quality Report

LOCATION: *Groton, SD*
 NURSERY: *AYT*

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 18 (cont)

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO (14 % mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	-----Rating-----						LOAF VOL (cc)
					A	B	C	D	INDEX	PRO	ASH (14% mb)	PRO	ASH (14 % mb)					D	C	C	C	C	C	T
SD3367	59.7	30.6	79	1	2	9	27	62	68.7	71	15.5	1.76	60.7	15.2	0.37	59.6	2	58.8	1.75	2	3	5	6	201
SD3369	62.8	30.1	66	1	1	2	18	79	74.2	67	15.3	1.69	58.6	14.5	0.37	60.3	2	58.5	1.75	2	4	3	5	184
SD3390	61.4	29.0	64	2	2	6	25	67	68.8	63	14.8	1.61	61.3	13.9	0.35	58.6	3	59.0	2.50	3	3	3	6	210

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:	0						3						6					
	STICKY-WEAK						ELASTIC						BUCKY					
	DOUGH CHAR (DC):						PLIABLE						CREAMY					
	CRUMB COLOR (CC):						GREY						DULL					
	YELLOW						IRREG, THICK						OPEN, THICK					
	CRUMB GRAIN (CG):						HARSH						COARSE					
	CRUMB TEXTURE (CT):												FINE					
													SILKY					

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 19

LOCATION: *Morris, MN*
NURSERY: *AYT*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14% mb)		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating					LOAF VOL (cc)
					A	B	C		PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)						-----	C	G	T	C	
CHRIS	58.5	26.2	56	4	1	3	8	88	93.9	73	16.1	1.82	58.3	15.1	0.40	57.6	3	60.5	2.75	3	4	3	6	226
2375	58.0	30.7	48	4	2	10	15	73	80.7	65	14.2	1.92	55.3	12.5	0.44	55.5	2	56.8	4.00	3	3	5	5	192
VERDE	57.6	29.5	72	2	0	6	15	79	80.8	72	14.5	1.82	57.6	13.0	0.39	56.5	2	56.5	3.00	3	5	6	5	192
NORM	57.4	29.4	68	1	1	5	16	78	83.4	64	14.8	1.78	55.8	13.2	0.44	56.9	2	58.8	3.75	3	3	3	5	202
MN93262	58.4	34.9	75	2	4	11	23	62	73.9	72	14.8	1.74	52.1	13.7	0.41	59.0	2	59.0	3.00	3	6	3	5	216
MN93377	57.5	27.7	43	3	2	2	11	85	87.7	70	14.1	1.97	48.6	12.2	0.47	54.3	2	59.0	5.00	3	5	6	6	192
MN94053	59.6	32.6	71	2	1	9	23	67	79.4	61	14.7	1.82	50.0	14.1	0.41	57.6	2	59.5	2.50	3	1	5	5	210
MN94151	58.2	29.9	65	3	1	8	19	72	76.8	63	14.6	1.76	45.9	13.2	0.40	55.0	1	56.0	2.25	2	1	6	4	181
MN95002	59.4	29.4	53	3	3	7	23	67	76.0	58	15.0	1.77	50.0	13.8	0.44	55.8	2	58.5	3.00	3	1	3	4	200
MN95023	57.5	31.2	73	1	1	8	27	64	77.0	58	14.1	1.88	52.3	12.8	0.42	55.0	2	56.5	3.25	3	4	3	5	212
MN95051	59.9	29.6	67	1	0	4	19	77	80.7	69	14.2	1.78	50.2	12.7	0.41	54.6	2	58.0	3.25	3	5	3	6	208
MN95084	59.5	29.9	67	2	0	7	23	70	74.3	58	13.6	1.77	56.0	11.4	0.40	53.5	2	58.5	4.75	3	5	3	5	173
MN95102	58.2	28.0	68	2	0	3	9	88	87.2	63	14.4	1.75	56.4	12.7	0.44	58.6	2	58.8	2.75	3	4	6	5	212
MN95124	59.7	27.3	40	3	47	13	9	31	43.7	19	14.3	1.99	37.9	11.7	0.39	55.0	2	55.5	2.75	3	4	6	5	184
MN95201	57.8	28.7	68	2	2	10	25	63	74.4	50	13.8	1.66	60.4	12.0	0.35	57.9	3	59.0	3.00	3	4	5	6	190
MN95211	59.0	29.7	70	2	1	1	9	89	85.8	64	14.9	1.82	55.3	13.3	0.43	56.9	3	58.5	3.75	3	4	5	6	212
MN95222	58.0	28.4	65	3	1	7	15	77	79.0	58	15.1	1.80	56.9	14.1	0.39	58.2	2	58.5	3.50	3	3	3	6	222
MN95223	58.2	31.6	76	1	2	13	26	59	72.3	52	15.1	1.80	57.1	13.6	0.37	56.2	2	56.5	3.25	3	3	3	6	212
MN95229	60.3	30.7	71	1	1	2	14	83	87.8	56	15.5	1.83	54.4	14.1	0.43	57.9	3	60.5	3.25	3	3	5	5	202
MN95230	59.0	30.0	60	2	11	23	20	46	62.5	35	14.5	1.68	56.9	13.6	0.33	56.2	2	57.0	3.25	3	5	3	6	204

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 19 (cont)

LOCATION: Morris, MN
NURSERY: AYT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C C	C T	C LOAF VOL
					DISTRIBUTION					PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)										
					A	B	C	D							INDEX									
MN95231	58.3	26.4	42	4	0	3	10	87	89.1	65	13.8	1.76	51.2	11.4	0.46	53.8	2	57.0	3.50	3	1	3	5	180
MN95242	55.3	31.2	68	2	1	9	26	64	71.6	50	14.5	1.85	52.3	13.1	0.44	53.8	1	57.5	3.00	3	3	3	5	208
MN95244	59.1	32.2	67	2	1	2	14	83	81.7	64	15.2	1.87	52.3	13.7	0.46	59.3	3	62.5	3.25	3	5	6	6	202
MN95268	57.0	27.3	64	2	0	1	9	90	85.8	64	14.2	1.70	50.9	12.5	0.39	59.3	3	60.8	5.25	3	4	3	6	202
MN95279	52.3	24.6	17	12	5	6	20	69	73.0	40	14.7	1.80	42.4	13.7	0.42	59.3	3	61.0	3.50	3	3	3	6	215
MN95284	59.3	28.3	57	3	1	3	12	84	87.1	60	14.5	1.68	56.2	13.1	0.40	58.6	2	60.0	3.25	3	4	4	6	228
MN95285	58.0	31.1	69	1	1	6	16	77	81.4	57	14.8	1.69	55.0	13.3	0.40	58.6	2	60.5	3.00	3	1	5	6	212
MN95286	58.4	26.9	54	3	0	2	10	88	82.7	64	13.7	1.77	59.9	11.6	0.43	56.9	3	59.0	2.25	2	1	6	4	185
MN95304	57.2	33.7	72	3	1	5	23	71	77.1	56	16.0	1.82	58.7	14.2	0.41	60.0	3							
MN95305	55.3	28.0	43	2	1	3	8	88	89.8	46	14.9	1.86	50.9	13.7	0.43	56.9	2	59.0	3.50	3	3	3	6	215

DISTRIBUTION: A = % Soft

B = % Semi-Soft

C = % Semi-Hard

D = % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK
YELLOW
IRREG, THICK
HARSH

PLIABLE
GREY

ELASTIC
DULL
OPEN, THICK
COARSE

3

6

BUCKY
BRIGHT WHITE
FINE
SILKY

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 20

LOCATION: North
NURSERY: AYT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	-----Rating-----					LOAF VOL (cc)
					A	B	C		PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)						C	C	C	G	T	
CHRIS	59.0	25.7	68	3	1	3	8	88	87.0	61	15.0	1.73	62.3	14.8	0.47	60.3	3	58.8	2.75	3	3	3	4	203
MARSHAL	58.5	26.2	54	6	2	8	12	78	73.7	50	13.4	1.83	61.7	12.8	0.42	55.0	2	54.0	3.00	3	3	5	2	188
WHEATON	56.3	27.1	58	6	3	10	23	64	66.4	51	12.7	1.73	59.5	11.3	0.48	58.2	2	56.5	3.00	3	4	5	2	180
NORM	57.7	29.9	74	3	3	9	23	65	66.7	58	12.9	1.64	60.1	11.8	0.45	60.0	3	58.0	3.50	3	3	6	2	200
VERDE	59.5	29.7	76	2	0	9	23	68	67.7	71	13.3	1.69	64.3	12.3	0.41	59.6	2	57.0	2.75	3	3	5	4	192
BACUP	61.4	27.1	28	7	2	4	9	85	91.5	61	16.4	1.84	57.7	16.1	0.41	65.4	4	61.5	2.25	3	3	5	5	198
BUTTE 86	58.5	30.9	76	3	2	5	23	70	72.2	69	14.5	1.67	59.3	13.4	0.41	62.1	3	60.0	2.50	2	3	5	4	188
GRANDIN	60.6	32.3	78	3	1	11	21	67	66.3	65	14.6	1.79	60.3	13.4	0.42	59.3	3	59.0	3.00	3	5	5	4	208
KULM	58.2	27.4	63	5	4	8	21	67	65.8	63	15.7	1.89	58.7	14.8	0.41	64.4	3	60.5	2.25	3	4	3	5	200
TRENTON	59.8	32.2	73	2	2	9	22	67	66.3	64	15.0	1.71	58.4	14.2	0.42	61.8	3	61.0	3.50	3	5	5	4	212
SHARP	60.3	30.2	58	5	3	13	28	56	65.9	54	13.9	1.73	60.7	13.2	0.41	58.6	2	60.0	2.50	2	3	6	5	190
OXEN	57.6	25.7	54	4	0	2	9	89	85.8	61	14.3	1.63	62.3	12.9	0.38	60.3	4	59.5	3.00	3	5	6	5	208
FORGE	60.6	29.6	76	3	3	10	27	60	64.3	53	14.4	1.78	59.2	13.1	0.36	60.5	3	59.5	2.75	3	4	5	5	210
LARS	58.0	29.1	78	2	1	11	24	64	66.3	74	13.2	1.74	61.5	12.1	0.44	56.9	3	58.0	3.75	3	4	3	4	198
HAMER	58.4	30.9	81	1	4	13	26	57	62.4	76	13.6	1.70	62.0	12.7	0.45	62.1	3	59.0	3.00	3	1	5	5	204
GUNNER	61.2	27.7	73	3	0	0	11	89	75.7	86	15.8	1.81	58.3	14.3	0.44	59.3	2	60.0	3.00	3	3	3	5	207
NORA	59.0	29.6	50	5	1	6	21	72	70.0	68	15.3	2.04	57.2	14.3	0.52	57.9	2	58.0	3.25	3	4	3	5	215
N92-0434	59.9	32.2	76	3	4	13	26	57	64.9	68	14.6	1.67	59.8	13.2	0.41	59.0	3	59.0	3.50	3	4	3	5	212
SHARPSH	62.2	29.9	73	2	3	21	27	49	59.1	67	14.2	1.65	59.4	13.1	0.38	60.3	2	60.8	2.25	3	3	5	5	202
2375	61.3	31.3	69	3	0	7	25	68	66.1	71	14.1	1.78	55.4	12.6	0.43	57.9	2	58.0	2.75	3	4	3	5	208

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 20 (cont)

LOCATION: North
NURSERY: AYT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C C C C					LOAF VOL (cc)				
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)					MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D		C	C	C	T
2370	59.0	27.2	45	8	2	5	27	66	66.1	75	14.3	1.72	55.6	13.2	0.42	59.6	2	57.0	3.25	3	3	3	6	5	214				
AC MAJES	59.2	28.0	66	3	0	9	20	71	69.3	83	15.0	1.83	60.5	14.3	0.41	59.6	3	59.5	2.75	3	5	6	5	5	213				
AC DOMAI	58.0	27.5	66	3	1	5	16	78	76.7	79	16.0	1.89	61.7	15.2	0.46	63.7	3	60.8	2.50	3	3	5	5	5	192				
AC CORA	59.1	27.4	67	2	1	4	15	80	83.0	82	15.5	1.84	62.0	14.9	0.49	60.3	2	60.5	2.25	3	3	3	5	5	205				
KEENE	60.0	27.6	52	6	2	4	12	82	73.4	78	15.1	1.90	58.4	14.0	0.42	60.8	3	60.8	2.50	3	3	3	5	5	203				
SBE0050	58.9	29.1	50	6	2	4	15	79	70.5	70	13.8	1.75	56.5	12.5	0.45	56.5	2	57.5	3.50	3	4	5	5	5	201				
MN93413	57.1	28.8	53	5	1	7	15	77	69.6	68	13.0	1.68	59.8	11.6	0.45	60.3	3	58.0	3.00	3	5	3	4	4	199				
MN91309	57.5	28.1	46	8	2	9	25	64	65.3	69	14.3	1.78	60.2	13.2	0.46	59.3	3	60.0	3.50	3	5	3	4	4	210				
MN93434	60.5	32.7	76	2	0	7	27	66	67.9	81	15.0	1.75	62.6	14.1	0.41	60.3	3	60.5	3.00	3	3	3	5	5	202				
MN94123	58.7	26.6	48	8	3	4	13	80	76.7	84	13.0	1.71	62.6	11.1	0.46	55.5	2	57.0	2.75	2	4	3	4	4	190				
MN94055	59.5	31.9	69	3	7	15	30	48	59.1	60	13.2	1.79	59.9	12.4	0.43	55.3	1	56.5	2.25	2	1	3	4	4	190				
MN94200	59.4	27.1	60	5	1	3	11	85	77.8	84	13.6	1.67	58.7	12.5	0.43	56.9	2	58.8	3.00	2	3	5	5	5	210				
SD3249	60.9	28.4	65	4	3	10	24	63	66.9	74	15.1	1.69	62.7	14.3	0.38	60.8	3	60.8	3.25	3	3	3	5	5	228				
RUSS	58.7	29.6	70	3	1	5	18	76	70.9	73	13.8	1.69	60.7	13.1	0.42	59.3	3	62.5	4.00	3	4	5	5	5	208				
EXP 818J	59.1	29.3	70	3	3	10	26	61	68.2	72	13.1	1.65	65.6	11.9	0.43	58.2	3	60.5	3.25	3	3	3	4	4	218				

DISTRIBUTION: A= % Soft

B= % Semi-Soft
C= % Semi-Hard
D= % Hard

0		3		6	
STICKY-WEAK		ELASTIC		BUCKY	
YELLOW		DULL		BRIGHT WHITE	
IRREG, THICK		OPEN, THICK		FINE	
HARSH		COARSE		SILKY	
DOUGH CHAR (DC):		PIABLE		CREAMY	
CRUMB COLOR (CC):		GREY		DULL	
CRUMB GRAIN (CG):		IRREG, THICK		OPEN, THICK	
CRUMB TEXTURE (CT):		HARSH		COARSE	

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 21

LOCATION: *South*
NURSERY: AYT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS		NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating				LOAF VOL (cc)
					A	B	C	D	INDEX		PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)						-----	C	G	T	
CHRIS	58.6	25.8	57	4	1	2	6	91	90.4	70	15.7	1.86	57.7	15.3	0.45	59.6	3	59.5	2.75	4	3	3	4	4	222
MARSHAL	57.0	25.2	40	6	1	5	18	76	71.1	63	13.9	2.01	59.4	13.3	0.47	60.0	3	60.0	2.50	3	3	3	4	4	195
WHEATON	56.1	28.4	57	3	2	5	23	70	70.7	63	14.3	1.94	58.6	13.6	0.49	62.5	3	62.5	3.00	3	3	3	4	4	202
NORM	57.5	30.1	71	3	2	8	22	68	68.4	69	14.3	1.94	55.7	13.5	0.46	62.7	3	62.8	2.75	3	3	6	5	5	202
VERDE	58.3	28.8	72	2	1	5	23	71	71.0	75	14.4	1.83	60.0	13.0	0.43	60.8	3	58.5	3.00	3	3	6	4	4	206
BACUP	60.6	27.6	33	5	1	5	11	83	89.3	66	16.6	1.97	50.0	16.4	0.41	63.1	3	63.0	2.50	3	3	3	5	5	212
BUTTE 86	60.1	31.4	80	1	1	2	16	81	75.6	81	15.4	1.88	55.3	14.8	0.42	63.1	3	61.0	2.75	3	3	3	5	5	209
GRANDIN	59.7	33.0	81	2	2	4	20	74	69.1	84	15.5	1.86	54.2	14.8	0.43	61.8	3	62.0	3.00	4	3	3	5	5	212
KULM	59.7	28.2	70	3	1	6	19	74	71.6	68	15.4	1.92	57.2	14.9	0.38	61.8	3	62.0	3.00	3	3	3	5	5	228
TRENTON	59.8	31.5	74	2	1	6	16	77	70.7	73	14.8	1.82	56.1	14.2	0.42	60.8	3	62.8	3.75	3	5	3	5	5	216
SHARP	60.3	30.3	75	2	1	9	21	69	74.7	58	14.8	1.82	58.4	14.1	0.37	60.8	3	60.8	2.25	3	3	3	4	4	191
OXEN	59.0	29.2	66	3	0	3	22	75	74.6	73	14.4	1.94	60.9	13.9	0.41	61.8	3	62.0	3.25	4	3	3	4	4	198
FORGE	59.7	28.1	57	4	1	6	12	81	72.5	63	14.8	1.93	53.7	13.7	0.39	61.8	3	62.0	3.00	4	3	3	4	4	180
LARS	56.8	29.9	80	1	1	3	20	76	70.9	75	14.1	1.92	59.2	13.5	0.48	60.8	4	62.0	3.50	4	3	3	5	5	198
HAMER	57.6	30.3	81	1	1	6	23	70	68.5	80	15.1	1.89	58.7	14.0	0.47	62.5	4	62.5	2.50	3	3	3	5	5	216
GUNNER	59.0	26.6	58	5	0	1	9	90	81.9	81	16.0	2.08	55.1	15.8	0.47	62.7	3	64.8	2.75	3	4	5	5	5	228
NORA	57.6	31.0	50	4	1	5	18	76	72.8	66	15.8	2.36	51.6	14.9	0.54	62.5	3	65.0	3.50	3	4	4	5	5	205
N92-0434	58.3	32.6	73	2	2	8	25	65	67.0	64	14.7	1.94	53.1	14.2	0.43	62.5	4	64.5	3.50	3	4	6	5	5	230
SHARPSH	61.9	30.2	74	2	2	10	23	65	65.4	66	14.8	1.87	54.7	14.1	0.41	62.1	3	62.0	2.50	3	3	3	4	4	203
2375	59.5	30.3	62	4	1	5	24	70	70.0	73	14.3	1.93	55.9	13.7	0.42	58.6	3	62.8	3.25	3	3	4	5	5	211

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 21 (cont)

LOCATION: South
NURSERY: AYT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	T	VOL (cc)
					DISTRIBUTION				PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14% mb)											
					A	B	C																	
														INDEX										
2370	58.5	28.2	57	4	2	6	21	71	68.8	71	15.1	1.97	50.2	13.9	0.49	61.4	3	61.5	3.25	3	3	4	5	208
AC MAJES	57.0	27.2	50	6	1	4	15	80	70.4	76	15.9	1.98	57.1	15.6	0.44	61.4	3	61.5	2.75	3	3	3	5	248
AC DOMAI	59.0	29.1	74	2	0	2	14	84	76.2	79	16.2	2.04	58.4	15.4	0.46	62.5	3	62.5	2.25	2	3	3	4	200
AC CORA	57.7	27.6	62	4	0	2	11	87	83.0	74	15.5	1.97	57.0	14.5	0.48	58.6	2	61.5	2.75	2	4	3	5	214
KEENE	58.6	26.5	42	7	0	1	10	89	81.5	79	15.2	1.92	54.4	13.9	0.42	59.0	2	61.0	2.75	3	3	5	5	208
SBE0050	57.0	27.1	41	7	2	5	16	77	72.6	61	14.1	1.92	51.4	13.7	0.46	60.3	4	62.5	3.75	4	5	6	5	212
MN93413	55.3	28.6	45	6	1	6	18	75	68.3	71	13.6	1.96	56.6	12.4	0.50	55.5	3	59.5	3.75	2	4	6	5	202
MN91309	59.5	30.9	57	3	3	12	28	57	64.6	75	14.6	1.87	53.5	14.0	0.43	60.5	3	62.5	3.75	3	3	6	4	183
MN93434	60.3	31.8	75	3	0	6	26	68	71.3	81	15.4	1.89	57.5	14.4	0.44	60.0	3	63.0	3.75	3	3	3	5	205
MN94123	58.3	28.0	60	3	0	1	11	88	86.4	81	13.8	1.89	58.5	12.5	0.47	54.6	2	57.5	3.00	3	4	6	5	200
MN94055	59.4	32.8	74	2	2	15	30	53	61.2	60	14.4	1.94	55.9	14.0	0.43	55.5	2	57.5	2.50	2	4	6	4	206
MN94200	58.2	27.0	57	4	0	2	9	89	81.1	77	14.1	1.87	52.1	13.0	0.56	58.2	3	59.5	3.50	3	3	5	5	210
SD3249	61.6	27.6	65	3	1	5	18	76	74.2	62	15.3	1.93	55.9	14.5	0.39	61.4	3	61.5	3.00	4	3	3	5	210
RUSS	59.0	30.7	78	2	1	1	15	83	74.8	75	14.6	1.89	54.9	13.8	0.43	60.0	3	62.0	3.25	3	4	3	5	204
EXP 818J	58.6	33.8	84	2	1	13	27	59	66.9	66	14.5	1.81	59.3	13.4	0.43	59.6	3	61.5	2.50	3	5	3	5	208

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

3

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

COARSE

6

BUCKY

BRIGHT WHITE

FINE

SILKY

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 22

LOCATION: St. Paul, MN

NURSERY: AYT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating				C T	LOAF VOL (cc)
					A	B	C	D		PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)						-----	C	G	T		
CHRIS	57.0	27.9	67	3	1	2	10	87	90.4	74	17.1	1.95	52.3	15.8	0.44	60.5	3	64.5	2.75	3	3	3	6	6	212
2375	58.4	33.3	71	2	1	4	13	82	87.3	60	15.6	1.91	53.0	13.6	0.41	57.9	3	62.8	3.25	3	3	5	6	6	182
VERDE	57.3	29.5	72	4	1	3	21	75	78.8	69	14.8	1.99	58.2	12.7	0.43	58.6	3	62.8	3.25	3	3	3	6	6	208
NORM	59.5	35.0	71	2	3	13	28	56	68.5	68	15.1	1.87	55.1	13.7	0.42	59.3	3	66.0	3.50	3	3	3	6	6	203
MN93262	58.9	35.6	70	2	3	15	29	53	65.6	58	15.0	1.74	52.3	13.2	0.36	61.4	3	67.5	3.25	3	5	3	6	6	203
MN93377	60.5	33.7	76	2	0	2	19	79	79.6	87	14.6	1.86	53.6	12.5	0.45	55.8	3	64.8	4.25	3	3	3	6	6	198
MN94053	59.7	32.5	68	3	3	8	24	65	77.8	45	14.3	1.95	50.9	13.1	0.40	56.5	2	64.5	3.00	3	4	3	6	6	188
MN94151	59.1	31.2	72	4	1	5	27	67	70.4	58	14.5	1.77	51.6	12.9	0.37	60.0	2	62.0	2.50	3	4	6	6	6	183
MN95002	60.2	30.9	71	3	3	10	22	65	79.7	52	15.9	1.96	50.0	14.3	0.35	56.9	2	64.5	2.75	3	3	3	6	6	188
MN95023	56.8	32.2	74	2	2	12	25	61	71.2	61	14.9	1.89	53.9	13.0	0.41	58.6	3	65.0	3.00	3	3	3	6	6	205
MN95051	59.0	29.3	73	2	0	2	14	84	89.2	66	14.7	1.95	56.5	13.0	0.42	60.5	3	66.5	3.50	3	3	4	6	6	192
MN95084	61.5	33.6	80	2	1	5	24	70	73.1	72	14.5	1.82	57.1	12.2	0.42	55.0	2	64.8	4.00	3	4	5	6	6	180
MN95102	59.1	32.5	81	2	0	3	12	85	84.9	75	15.8	1.89	54.4	13.7	0.43	63.1	4	65.0	2.50	3	4	5	6	6	203
MN95124	61.7	29.1	64	3	34	19	13	34	50.5	17	14.7	2.12	35.8	11.5	0.36	55.8	3	64.0	2.00	3	4	3	6	6	180
MN95201	57.9	30.7	68	3	4	12	25	59	71.2	51	14.4	1.85	58.7	12.6	0.39	56.5	2	60.5	3.00	3	1	3	6	6	184
MN95211	59.0	33.3	86	4	1	3	14	82	80.6	78	15.5	1.80	55.3	13.2	0.42	60.3	3	61.0	3.50	3	4	3	6	6	203
MN95222	60.4	33.6	81	1	1	6	29	64	67.0	68	16.3	1.77	59.3	14.9	0.36	63.1	3	63.0	3.00	3	1	3	6	6	212
MN95223	59.0	33.0	74	2	5	11	30	54	64.6	55	15.6	1.88	54.2	15.0	0.35	61.4	4	64.5	3.00	3	4	5	6	6	200
MN95229	60.9	32.7	77	2	1	5	21	73	79.6	71	15.6	1.87	53.7	13.7	0.40	60.8	3	67.5	3.25	3	4	3	6	6	210
MN95230	58.6	29.4	59	4	12	24	27	37	55.7	48	14.5	1.96	48.1	13.7	0.34	60.3	3	63.0	3.00	3	3	4	6	6	203

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 22 (cont)

LOCATION: St. Paul, MN
NURSERY: AYT

FARGO, ND

VARIETY		TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	C	T	C	LOAF VOL (cc)	
						A	B	C	D	INDEX	HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)	Rating-----													
MN95231		60.1	29.1	64	3	1	5	18	76	76.5	59	14.4	1.85	49.8	11.9	0.42	54.3	2	62.5	4.00	3	3	3	3	6	6	6	6	192	
MN95242		56.2	31.5	70	3	2	12	31	55	65.2	47	14.9	1.86	49.0	13.6	0.41	56.9	2	63.5	2.75	3	1	3	6	6	6	6	219		
MN95244		58.7	34.9	81	1	1	4	23	72	72.2	61	15.7	2.10	50.7	13.7	0.62	60.5	3	66.5	2.75	3	3	3	3	6	6	6	218		
MN95268		59.4	31.1	61	3	0	3	14	83	77.0	65	15.0	1.81	56.3	13.2	0.42	60.5	4	67.5	5.50	3	3	3	3	6	6	6	198		
MN95279		54.4	28.0	48	9	4	10	28	58	65.1	45	15.0	1.83	49.1	13.5	0.39	56.9	3	64.0	4.00	3	3	3	3	6	6	6	209		
MN95284		58.2	28.7	60	6	0	7	20	73	78.5	57	14.5	1.82	52.3	13.1	0.41	55.8	2	64.0	4.00	3	3	3	3	6	6	6	210		
MN95285		58.6	32.0	67	3	3	10	23	64	73.6	56	14.4	1.76	52.5	13.4	0.39	57.6	3	65.0	3.75	3	3	3	3	6	6	6	215		
MN95286		58.7	29.6	64	3	0	3	16	81	72.2	75	14.2	1.95	54.2	11.5	0.44	56.5	2	64.5	2.50	2	1	3	6	6	6	6	188		
MN95304		58.1	36.9	86	1	3	10	29	58	70.5	60	16.0	1.88	53.7	14.3	0.38	56.9	3	63.0	3.25	3	3	3	3	6	6	6	218		
MN95305		57.0	32.1	76	2	1	3	19	77	85.8	62	15.6	1.94	54.0	14.4	0.38	58.2	3	64.5	2.50	3	1	5	6	6	6	6	206		

DISTRIBUTION: A = % Soft

B = % Semi-Soft

C = % Semi-Hard

D = % Hard

RATINGS:	0						3			6								
	DOUGH CHAR (DC):			STICKY-WEAK			PLIABLE			ELASTIC			BUCKY					
	CRUMB COLOR (CC):			YELLOW			GREY			DULL			CREAMY			BRIGHT WHITE		
	CRUMB GRAIN (CG):			IRREG, THICK						OPEN, THICK			FINE			SILKY		
	CRUMB TEXTURE (CT):			HARSH						COARSE								

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 23

LOCATION: *Langdon, ND*
NURSERY: *Field Plots*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX		BAKE ABS	MIX TIME (min)	D		C		LOAF VOL (cc)
					A	B	C		PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14% mb)	ASH (14% mb)	ABS	PAT	ABS			C	C	C	G	T
AMIDON	55.7	25.5	43	7	0	1	4	95	96.2	89	13.7	1.72	74.5	13.0	0.53	63.1	4	64.0	2	1	3	3	5
BUTTE 86	57.3	32.0	81	2	2	7	23	68	74.4	81	15.1	1.88	72.4	13.8	0.54	62.5	3	64.5	2	3	3	3	5
GRANDIN	58.6	32.7	87	1	1	9	22	68	74.2	78	14.8	1.84	73.8	13.8	0.50	61.4	3	63.5	3	3	3	4	790
KEENE	59.5	28.1	66	2	1	2	13	84	87.9	75	14.4	1.77	73.3	13.7	0.49	61.8	3	64.0	3	3	3	5	780
KULM	59.1	30.3	80	1	4	17	32	47	61.0	74	15.7	1.82	74.0	14.7	0.50	63.1	3	65.0	2	3	3	5	775
TEAL	54.9	28.6	58	3	2	5	19	74	77.3	66	15.6	1.85	73.9	15.2	0.54	65.7	3	64.8	2	3	5	4	850
TRENTON	59.9	33.7	87	0	1	4	16	79	82.5	73	14.9	1.81	75.2	13.9	0.49	61.8	4	64.8	3	3	5	5	790
STOA	54.6	26.8	57	5	1	3	14	82	85.3	66	15.2	1.86	72.8	14.3	0.54	63.1	4	65.0	3.25	2	3	5	775
2375	59.9	33.9	79	2	1	10	23	66	70.8	68	14.0	1.73	74.4	13.1	0.51	60.0	3	60.8	2.00	2	3	4	720

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BUCKY

BRIGHT WHITE

FINE

SILKY

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 25

LOCATION: *Minot, ND*
NURSERY: *Field Plots*

FARGO, ND

VARIETY	FIELD PLOTS										NURSERY										SKWCS HARDNESS										WHEAT				FLOUR				MIX				BAKE		MIX		LOAF	
	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION				HARD- NESS		PRO		ASH		FLOUR EXT		PRO		ASH		FLOUR EXT		MIX ABS		MIX PAT		ABS	TIME (min)	D C	C C	C G	C T	VOL (cc)															
					A	B	C	D	INDEX	PRO	ASH	PRO	ASH	PRO	ASH	PRO	ASH	MIX ABS	MIX PAT																													
AMIDON	59.5	29.7	73	4	0	2	14	84	73.1	89	14.3	1.51	76.2	13.5	0.50	62.5	3	63.0	2.00	3	5	5	4	800																								
BUTTE 86	57.7	28.8	62	4	2	4	17	77	71.6	75	15.7	1.84	70.8	14.7	0.51	63.7	4	65.5	2.00	3	3	3	4	850																								
ERNEST	59.8	31.4	73	3	5	12	35	48	58.5	59	14.2	1.73	74.2	12.9	0.50	63.1	4	63.0	2.00	3	5	3	4	800																								
GRANDIN	59.8	30.9	68	2	1	6	23	70	68.7	73	14.8	1.77	75.7	14.1	0.54	62.7	4	66.8	2.75	3	5	5	5	960																								
GLUPRO	57.2	31.6	61	3	2	8	28	62	68.2	88	18.7	1.79	75.9	17.7	0.50	68.9	5	68.0	2.75	4	5	5	6	1035																								
KEENE	60.9	26.4	52	5	1	2	12	85	74.3	76	14.3	1.54	74.6	14.0	0.45	65.4	3	64.8	2.25	3	6	3	5	950																								
KULM	59.8	30.4	71	3	5	13	31	51	59.3	62	15.6	1.78	73.6	15.0	0.49	68.0	4	67.0	2.00	3	5	5	5	990																								
STOA	57.6	26.9	52	6	1	3	13	83	72.4	69	14.5	1.69	73.2	14.0	0.48	62.5	5	65.5	2.50	4	5	3	5	915																								
TEAL	60.2	27.1	52	4	6	11	30	53	59.7	65	15.0	1.65	75.3	14.8	0.46	66.5	4	64.5	2.25	4	5	6	5	1010																								
TRENTON	60.2	28.3	74	2	1	1	15	83	73.4	77	15.2	1.62	73.6	14.4	0.48	66.1	5	66.0	2.75	4	5	3	5	950																								
2375	58.2	29.5	50	5	1	8	25	66	64.8	66	14.8	1.71	75.1	13.9	0.50	66.8	4	65.5	2.50	4	5	3	5	900																								

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:		0			3			6		
		STICKY-WEAK	PLIABLE	ELASTIC	GREY	DULL	CREAMY	BUCKY	BRIGHT WHITE	SILKY
DOUGH CHAR (DC):										
CRUMB COLOR (CC):		YELLOW								
CRUMB GRAIN (CG):		IRREG, THICK		OPEN, THICK				FINE		
CRUMB TEXTURE (CT):		HARSH		COARSE						

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 26

LOCATION: *Williston, ND*
NURSERY: Field Plots

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D	Rating-----				LOAF VOL (cc)		
					DISTRIBUTION					PRO	ASH (14% mb)	EXT (%)	FLOUR		PRO						ASH (14 % mb)	C	C	C		G	T
					A	B	C	D					INDEX	PRO													
104	58.7	25.9	35	7	3	4	10	83	73.8	89	15.1	1.80	72.3	14.2	0.52	60.8	4	62.8	2.50	4	5	5	5	5	910		
205	58.0	25.2	22	14	2	5	5	88	76.1	87	14.5	1.82	71.7	14.1	0.54	62.5	4	64.5	2.75	4	5	5	5	5	875		
303	58.9	26.0	40	7	1	2	8	89	77.1	88	14.2	1.74	73.9	13.7	0.52	61.4	4	63.5	2.25	4	5	3	5	5	815		
105	56.4	29.2	57	5	77	13	8	2	19.3	19	14.8	1.96	68.5	13.7	0.61	60.0	3	62.0	2.25	3	3	5	4	775			
203	59.0	31.4	61	5	86	9	4	1	12.8	19	13.6	1.94	70.0	12.7	0.58	57.6	3	61.5	2.50	3	3	2	4	750			
302	59.3	30.6	66	4	85	11	3	1	13.6	10	13.8	1.93	68.9	12.5	0.57	59.3	3	61.0	2.25	2	3	5	4	715			
AMIDON 1	58.4	27.6	58	3	2	5	16	77	71.8	90	16.9	1.77	71.7	16.1	0.52	67.1	3	66.5	2.00	3	5	3	5	880			
AMIDON 2	59.2	27.1	60	3	1	3	16	80	73.5	94	16.6	1.70	73.2	16.0	0.52	68.0	3	66.0	2.00	3	5	5	5	900			
AMIDON 3	58.5	27.7	58	4	2	4	15	79	72.9	92	16.6	1.79	71.8	16.0	0.52	67.1	3	65.0	1.75	3	5	6	5	890			
Penwawa 1	60.3	33.0	81	1	90	6	2	2	5.7	14	15.1	1.97	71.2	14.4	0.62	61.4	3	63.5	2.25	3	5	5	5	810			
Penwawa 2	59.5	32.7	81	1	92	6	1	1	7.5	13	15.0	1.88	69.3	13.8	0.58	59.6	4	61.5	2.25	3	5	3	4	790			
Penwawa 3	61.0	32.9	83	0	94	5	1	0	9.1	20	15.1	1.83	71.8	13.9	0.61	60.3	3	62.5	2.25	3	5	3	4	780			

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BRIGHT WHITE

FINE

SILKY

6

3

0

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 27

LOCATION: *Minneapolis, MN*
NURSERY: SPECIAL

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)	
					A	B	C		D	INDEX	PRO	ASH (14% mb)	EXT (%)	PRO									ASH (14 % mb)
CHRIS	56.2	27.2	61	5	0	2	7	91	94.9	75	16.5	2.03	54.3	15.0	0.48	56.9	3	62.8	2.25	3	3	6	238
VERDE	57.0	29.6	72	3	1	2	15	82	89.3	60	14.5	1.86	59.8	12.6	0.55	55.5	2	60.5	3.00	3	3	5	208
2375	57.4	31.4	64	2	1	5	12	82	92.6	55	15.2	2.01	52.4	13.0	0.47	55.0	3	63.0	3.00	3	3	5	195
2	58.6	33.1	79	1	2	2	4	92	96.5	86	16.6	1.92	50.9	14.3	0.58	57.6	3	66.0	3.00	3	3	6	212
3	55.8	30.2	56	5	1	8	17	74	80.3	52	15.1	2.07	48.1	13.9	0.44	55.8	3	64.0	3.75	3	3	4	210
5	56.2	31.3	52	5	1	4	17	78	85.7	62	15.6	2.23	49.4	14.0	0.71	55.8	3	66.5	3.25	3	2	3	210
6	54.9	33.9	66	2	2	7	13	78	89.1	54	14.6	2.37	51.5	13.1	0.78	55.3	2	61.0	3.00	3	2	3	182
7	53.0	32.9	57	2	5	7	11	77	86.5	44	14.8	2.72	48.5	13.5	0.90	53.8	2	60.8	2.00	3	2	3	180
8	59.7	33.1	80	2	4	11	23	62	76.1	48	15.0	1.87	52.2	13.6	0.38	56.5	3	58.5	2.25	3	3	6	190
10	59.0	34.6	77	1	1	3	14	82	92.7	67	15.3	1.95	57.7	13.3	0.46	56.5	3	64.5	3.00	3	4	3	192
11	56.2	37.0	83	1	2	14	17	67	79.6	56	14.7	2.03	51.2	12.7	0.52	54.3	1	61.0	2.75	3	3	6	198
14	56.9	29.9	58	3	1	1	8	90	93.2	70	16.1	2.05	51.5	14.7	0.49	57.9	2	62.5	2.25	3	4	3	204
15	59.1	35.5	91	0	0	3	13	84	87.5	60	15.5	1.82	54.0	13.5	0.42	57.6	2	64.8	2.50	3	3	3	198

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

STICKY-WEAK
YELLOW
IRREG, THICK
HARSH

PLIABLE

GREY

3

ELASTIC
DULL
OPEN, THICK
COARSE

CREAMY

BUCKY
BRIGHT WHITE
FINE
SILKY

6

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 28

LOCATION: St. Paul, MN

NURSERY: Special

FARGO, ND

Special																									
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating			C T	LOAF VOL (cc)
					DISTRIBUTION			HARD- NESS	PRO	ASH (14% mb)	EXT	FLOUR		PRO	ASH (14% mb)						C	C	C		
					A	B	C					D	INDEX												
RL 1	53.6	28.2	55	2	8	19	21	52	63.1	40	14.5	1.80	49.5	12.6	0.44	53.2	2	61.0	3.50	2	3	5	4	171	
RL 2	53.2	28.4	68	1	29	18	16	37	56.5	31	15.8	1.84	36.1	13.5	0.50	53.2	1	57.0	2.00	1	1	5	1	110	
RL 3	58.2	31.3	80	1	1	4	23	72	66.1	59	14.3	1.83	54.3	11.8	0.46	54.3	1	58.5	1.50	1	1	3	3	162	
RL 4	56.2	34.5	90	1	74	19	5	2	24.1	13	15.4	1.89	36.8	13.1	0.36	55.8	2	62.0	2.75	3	3	3	5	202	
RL 5	55.5	33.6	88	0	73	18	6	3	25.1	13	15.4	2.04	39.5	13.3	0.37	57.6	3	63.0	3.00	3	3	6	5	202	
RL 6	54.0	24.6	37	5	5	6	10	79	85.7	36	15.3	1.71	52.9	13.1	0.43	54.3	1	63.0	2.25	1	1	3	2	148	
RL 7	55.6	34.1	87	0	82	12	4	2	20.5	14	15.4	1.75	33.8	13.3	0.38	55.8	2	61.0	2.25	3	5	5	4	188	
RL 8	57.8	29.7	75	1	1	3	12	84	74.7	68	16.7	1.91	51.7	14.3	0.47	60.8	3	66.0	2.25	3	6	3	5	210	
RL 9	57.0	33.9	78	1	2	10	32	56	60.7	70	14.7	1.78	56.5	12.3	0.37	55.5	2	61.5	2.50	2	4	3	5	182	
RL 10	55.8	32.2	76	1	3	7	28	62	64.0	61	16.9	1.99	52.9	14.5	0.47	58.2	1	60.8	1.50	1	1	5	3	148	
RL 11	52.1	27.3	58	1	7	16	21	56	67.4	37	15.4	1.89	47.4	13.6	0.43	60.0	2	64.5	2.25	1	1	3	1	130	
RL 12	51.3	28.9	69	1	50	19	15	16	37.8	28	15.2	1.87	38.3	12.4	0.42	50.5	1	60.0	1.50	0	1	3	1	118	
RL 13	54.9	32.8	83	1	78	16	4	2	21.6	15	16.5	2.17	31.4	13.0	0.50	56.9	2	58.8	1.75	2	2	3	4	162	
RL 14	52.4	27.1	51	1	9	14	32	45	56.6	37	14.9	2.12	44.7	13.1	0.59	56.5	2	62.5	1.50	1	2	3	3	150	
RL 15	55.8	35.5	91	0	75	19	3	3	23.9	19	15.6	1.97	41.3	13.6	0.40	60.3	3	62.5	1.75	3	6	3	4	200	
RL 16	53.8	32.1	88	0	72	11	6	11	26.3	11	15.8	2.04	41.0	13.5	0.38	55.8	2	62.5	2.25	2	3	5	4	192	
RL 17	56.5	30.6	70	1	82	11	3	4	18.6	14	14.5	1.92	37.3	12.2	0.32	50.2	1	58.5	2.00	1	4	3	3	168	
RL 18	55.8	26.7	56	4	38	24	16	22	43.3	18	15.2	1.86	41.3	12.3	0.33	53.2	2	58.5	2.00	2	4	5	4	158	
RL 19	57.8	26.4	46	6	46	24	18	12	36.9	21	14.4	1.74	39.6	11.9	0.36	50.8	1	56.0	2.00	1	1	3	2	168	
RL 20	54.7	28.2	49	2	8	18	21	53	63.1	36	15.0	1.95	47.6	12.9	0.43	55.5	2	60.8	2.00	2	2	3	5	188	

1997 Spring Wheat Quality Report

LOCATION: *St. Paul, MN*
 NURSERY: *Special*

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 28 (cont)

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C				LOAF VOL (cc)
					A	B	C	D		PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)										
RL 21	54.0	35.5	88	1	77	9	5	9	19.7	11	15.4	1.92	39.2	13.0	0.40	55.8	2	62.5	2.00	3	3	3	4	190
RL 22	53.4	25.8	49	3	10	14	21	55	67.3	36	15.2	1.81	46.6	12.9	0.44	54.3	1	60.5	2.00	1	2	5	2	160
RL 23	54.3	35.8	92	0	77	13	7	3	23.0	15	15.7	1.92	37.0	13.6	0.37	55.5	2	62.8	2.00	2	5	5	4	184
RL 24	54.0	28.6	67	2	62	17	9	12	30.7	15	15.1	1.83	38.2	12.0	0.34	53.5	1	60.5	1.75	1	1	3	2	150
RL 25	56.2	29.9	84	2	2	5	17	76	68.9	53	15.1	1.99	49.0	12.4	0.47	52.6	1	60.5	1.50	1	1	3	2	154
RL 26	57.9	30.8	80	1	2	4	16	78	69.0	54	14.7	1.93	54.1	11.8	0.52	55.8	1	61.5	1.50	1	4	3	4	169
RL 27	54.2	24.7	84	4	5	10	17	68	79.3	33	14.8	1.84	47.8	13.0	0.38	53.8	1	61.0	1.75	1	6	3	2	162
RL 28	55.0	34.7	87	1	74	17	6	3	23.6	11	16.0	2.04	36.7	13.5	0.36	58.2	2	65.0	2.00	3	2	5	5	210
RL 29	57.4	34.1	82	1	18	16	31	35	50.3	48	15.1	1.85	45.2	12.8	0.40	54.6	2	60.5	1.75	3	4	5	5	187
RL 30	57.8	32.2	79	2	5	12	31	52	59.4	44	15.0	1.76	49.3	12.8	0.35	53.8	2	60.5	2.25	2	5	5	5	194
RL 31	60.3	37.3	89	1	63	25	9	3	29.5	23	16.0	1.94	37.0	13.3	0.43	55.0	2	61.5	3.00	3	6	4	5	210
RL 32	58.1	36.6	90	1	81	14	4	1	22.3	7	14.9	2.04	31.9	11.7	0.33	53.8	2	60.0	2.00	2	6	3	4	182
RL 33	51.4	26.7	91	2	11	18	31	40	55.3	43	15.5	1.74	40.0	13.3	0.45	55.8	1	58.8	1.75	0	1	3	1	130
RL 34	56.1	35.9	89	1	66	22	6	6	27.7	20	15.8	1.91	38.3	13.7	0.38	60.0	3	62.5	1.75	3	6	3	4	195
RL 35	54.7	25.3	54	4	2	8	16	74	86.1	42	15.5	1.86	47.1	13.4	0.39	56.2	1	61.0	1.75	1	1	5	4	148
RL 36	54.6	27.1	51	3	4	11	26	59	64.7	54	15.7	1.75	45.5	13.1	0.40	59.0	2	65.0	1.75	2	1	3	5	170
RL 37	56.1	36.1	91	0	72	19	6	3	23.4	14	15.4	1.86	30.0	12.4	0.35	53.5	2	60.8	3.00	3	3	3	4	181
RL 38	56.6	35.2	89	0	68	21	7	4	26.4	19	15.3	1.86	32.7	12.6	0.35	56.5	2	62.5	2.50	3	3	4	4	194
RL 39	56.1	36.1	90	1	70	23	5	2	25.1	18	15.4	1.79	36.9	13.1	0.39	55.3	2	63.0	2.75	3	3	3	5	191
RL 40	55.4	27.5	63	2	4	15	26	55	60.4	50	15.4	1.80	41.2	13.0	0.41	55.5	2	62.5	2.25	3	3	3	5	185

1997 Spring Wheat Quality Report

LOCATION: St. Paul, MN
NURSERY: Special

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 28 (cont)

NURSERIESpecial																									
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS						NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C G	C T	LOAF VOL (cc)
					DISTRIBUTION			PRO	ASH (14% mb)	EXT (%)		PRO	ASH (14 % mb)												
					A	B	C																		
RL 41	56.2	26.8	49	4	17	10	13	60	70.9	32	14.6	1.77	42.2	12.7	0.41	51.6	1	58.5	2.00	1	1	5	2	158	
RL 42	56.6	34.3	89	1	78	16	3	3	22.5	16	15.3	1.92	38.1	13.0	0.40	56.5	2	62.0	2.25	3	3	3	5	193	
RL 43	58.0	33.7	78	2	40	27	22	11	37.9	19	14.5	2.24	30.0	11.1	0.39	51.9	2	58.5	2.00	3	5	5	4	168	
RL 44	54.9	26.5	53	4	67	21	9	3	26.3	10	14.9	1.89	31.3	10.9	0.36	50.2	1	57.5	2.00	1	4	5	2	142	
RL 45	52.1	30.0	68	2	8	22	31	39	54.5	51	15.8	1.83	40.2	13.2	0.40	56.9	1	61.5	1.75	1	1	3	1	140	
RL 46	58.2	30.8	81	1	0	1	12	87	75.8	76	17.2	1.93	44.5	14.9	0.45	60.3	3	64.8	2.00	3	6	3	6	210	
RL 47	55.4	35.2	91	0	75	16	6	3	21.5	17	15.7	1.87	32.9	13.3	0.35	56.5	2	62.8	2.25	3	3	3	5	188	
RL 48	59.1	31.5	70	2	65	19	11	5	26.8	15	13.8	1.77	39.0	10.9	0.39	49.9	1	54.5	2.00	1	4	5	1	148	
RL 49	59.0	29.5	68	2	59	22	14	5	31.0	17	14.6	1.93	39.7	12.1	0.39	53.5	1	58.5	2.00	1	4	3	1	158	
RL 50	57.8	36.0	84	1	71	19	8	2	25.6	22	14.3	1.76	31.4	11.8	0.36	49.2	1	55.0	1.50	1	1	5	1	128	
RL 51	57.9	34.6	86	1	0	5	24	71	66.0	52	14.6	1.89	47.6	11.9	0.44	53.2	1	56.8	1.50	2	4	6	4	162	
RL 52	52.2	24.8	35	12	6	9	20	65	64.6	54	16.1	1.76	36.2	13.3	0.45	53.2	1	61.0	1.75	1	1	3	2	132	
RL 53	54.4	30.4	75	1	3	13	35	49	59.3	48	15.0	1.66	44.4	12.3	0.47	53.2	1	58.5	1.50	1	1	3	1	121	
RL 54	54.6	29.0	64	2	16	27	31	26	48.2	37	15.1	1.94	41.1	13.0	0.45	54.3	2	58.5	2.00	2	2	6	5	170	
RL 55	57.3	32.8	77	0	2	8	32	58	63.5	63	16.0	1.94	53.3	13.8	0.56	56.9	1	60.8	1.25	1	4	5	5	162	
RL 56	54.7	29.7	67	2	4	5	11	80	89.0	47	14.8	1.90	50.5	12.9	0.54	56.9	1	60.8	1.50	1	1	5	2	151	
RL 57	57.0	31.3	76	1	2	4	18	76	69.4	71	16.0	1.92	45.5	13.6	0.47	55.8	1	60.0	1.50	1	4	5	4	152	
RL 58	56.6	36.4	87	0	79	15	5	1	22.3	17	15.0	1.90	27.8	12.3	0.44	53.2	2								
RL 59	56.3	33.3	89	0	77	16	5	2	22.2	14	15.0	1.93	29.3	12.8	0.37	54.3	2								
RL 60	59.0	30.7	64	3	59	26	11	4	30.2	19	14.5	1.89	37.1	11.7	0.36	49.9	1	56.5	2.25	1	4	5	1	158	

Table 28 (cont)

LOCATION: *St. Paul*
NURSERY: Special

NURSERY:		Special		SKWCS HARDNESS																NIR		WHEAT		FLOUR		MIX		BAKE		MIX		LOAF																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
				DISTRIBUTION				HARD-NESS	PRO	ASH	FLOUR	EXT	PRO	ASH	MIX	ABS	PAT	ABS	TIME	D	C	C	G	T	C	LOAF																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
VARIETY		TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A	B	C	D	INDEX																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 28 (cont)

LOCATION: St. Paul, MN
NURSERY: Special

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating					VOL T (cc)
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14 % mb)						C	C	C	G		
					A	B	C	D																INDEX	
RL 81	54.8	29.5	72	2	5	17	29	49	60.9	48	15.6	2.08	45.9	13.8	0.79	60.3	2	62.8	1.75	1	2	3	5	5	170
RL 82	52.8	26.0	47	3	9	16	19	56	64.8	34	14.6	2.29	43.8	13.1	0.49	55.8	2	61.5	2.50	1	1	1	1	1	150
RL 83	57.8	32.3	80	1	68	22	8	2	26.4	14	14.5	1.80	30.5	11.9	0.38	51.6	1	56.5	2.00	1	4	3	1	1	150
RL 84	58.2	34.9	82	0	71	21	7	1	25.4	14	13.9	1.82	22.4	9.9	0.49										
RL 85	55.4	35.3	91	0	82	12	4	2	19.6	7	15.5	1.93	26.6	12.8	0.40	55.5	3								
RL 86	55.6	35.1	88	0	73	18	7	2	23.2	12	15.7	2.08	31.3	13.1	0.41	55.5	2	60.8	2.25	3	3	5	5	5	178
RL 87	58.4	34.6	80	1	1	5	26	68	64.4	47	14.8	1.82	53.2	12.7	0.48	55.0	2	61.5	2.25	2	3	6	6	6	172
RL 88	59.0	29.7	58	4	61	26	9	4	28.2	14	14.3	1.93	38.5	11.2	0.39	50.8	1	57.0	2.00	1	4	3	2	2	150
RL 89	55.1	37.1	89	0	85	10	2	3	17.5	6	15.1	1.79	33.0	12.9	0.34	55.3	3	60.5	2.25	2	5	5	5	5	170
RL 90	54.6	35.4	89	1	87	9	2	2	16.4	6	15.4	1.97	31.0	12.7	0.36	53.2	2	58.5	2.25	2	5	6	6	6	182
RL 91	57.2	31.5	77	1	41	16	13	30	42.8	31	15.5	1.92	39.9	12.5	0.36	53.5	2	59.5	2.25	2	3	3	5	5	178
RL 92	55.4	36.0	89	0	75	15	7	3	23.2	17	15.7	2.07	32.4	13.2	0.48	55.8	2	61.0	2.50	2	3	3	6	6	188
RL 93	56.9	32.6	84	0	74	18	5	3	23.5	7	14.9	1.95	37.6	13.2	0.38	56.5	3	60.5	2.25	3	3	3	5	5	190
RL 94	56.6	26.6	52	3	3	7	18	72	75.3	54	15.5	1.73	48.1	13.2	0.48	57.9	3	62.5	2.00	2	5	3	5	5	180
RL 95	58.9	31.2	72	3	46	32	15	7	35.3	14	14.2	1.99	27.8	11.4	0.40	51.6	2								
RL 96	57.4	32.7	84	0	21	12	22	45	53.3	40	15.1	1.92	39.8	12.4	0.36	55.0	2	59.0	2.00	2	3	6	5	5	182
RL 97	54.2	28.8	56	3	17	21	30	32	50.2	36	14.4	1.83	37.8	12.8	0.39	53.8	2	58.8	2.25	1	3	3	4	4	170
RL 98	52.2	24.6	27	16	11	11	20	58	60.3	43	16.7	1.96	34.9	13.8	0.49	55.0	2	56.8	2.25	2	1	1	1	1	118
RL 99	58.8	31.2	70	2	76	14	8	2	21.3	8	13.6	1.91	32.9	11.0	0.39	51.3	1	56.5	2.00	2	4	3	1	1	152
RL 100	57.8	29.4	68	1	1	4	16	79	70.4	59	15.7	1.94	49.5	13.2	0.47	54.6	1	56.0	1.50	1	1	5	1	1	134

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 28 (cont)

LOCATION: St. Paul, MN
NURSERY: Special

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	PAT	BAKE ABS	MIX TIME (min)	D	C	C	C	C	C	LOAF VOL (cc)
					A	B	C	D		PRO (14% mb)	ASH (14% mb)		PRO (14 % mb)	ASH (14 % mb)											
RL 101	55.9	34.7	91	0	86	9	3	2	17.6	23	14.7	1.89	29.2	12.4	0.33	54.3	2								
RL 102	57.9	34.0	82	1	77	17	5	1	22.3	18	14.8	1.86	23.7	12.0	0.34	52.9	2								
RL 105	58.1	36.2	85	0	81	14	4	1	18.8	20	14.1	1.92	24.3	10.7	0.31	48.2	1								
RL 106	56.4	35.3	92	0	72	18	5	5	25.3	27	15.2	1.97	35.2	12.9	0.36	55.8	2	60.0	2.50	3	5	3	5	5	181
RL 107	54.3	34.7	85	0	69	21	8	2	25.9	11	16.0	1.99	37.3	13.7	0.45	56.9	2	62.8	2.50	2	4	6	4	4	188
RL 108	58.4	35.1	79	1	1	6	25	68	65.7	68	15.6	1.89	55.3	13.3	0.49	56.9	1	59.5	1.50	1	4	5	5	5	160
RL 109	55.5	30.8	63	4	3	15	33	49	62.4	53	14.5	1.82	50.2	12.5	0.44	57.9	2	61.5	2.25	2	4	3	6	6	168
RL 110	58.4	32.9	76	2	0	2	17	81	70.4	76	15.1	1.86	51.0	12.6	0.48	53.8	1	58.5	1.50	1	1	3	5	5	160
Wuhan	56.5	33.3	80	1	46	14	12	28	39.2	24	14.1	1.92	36.5	11.7	0.43	55.0	2	61.0	2.50	2	4	6	5	5	168
Norm	59.3	36.1	92	0	1	3	18	78	67.6	72	15.2	1.93	46.7	13.1	0.46	59.6	4	63.0	2.00	3	5	3	6	6	205
Roblin	57.1	35.0	87	2	12	31	32	25	50.9	54	16.7	1.96	53.6	15.5	0.39	62.1	4	64.5	2.25	3	2	3	6	6	220

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

BUCKY

0

3

6

BRIGHT WHITE

FINE

SILKY

1997 Spring Wheat Quality Report

LOCATION: Crookston, MN
NURSERY: Specials

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 29

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	Rating-----					LOAF VOL (cc)
					A	B	C	D		PRO	ASH (14% mb)		PRO	ASH (14 % mb)						C	C	C	G	T	
BH-M1	56.9	33.0	68	4	5	9	20	66	76.0	58	13.1	1.82	49.3	11.5	0.50	51.6	1	56.8	2.00	1	1	3	4	4	165
BH-M2	51.6	31.9	80	1	63	15	8	14	30.3	6	14.0	2.36	32.7	12.5	0.48	50.8	1	56.0	2.75	2	4	3	4	4	170
BH-M3	51.8	31.9	82	1	71	14	6	9	25.3	17	14.1	1.93	31.9	12.5	0.46	50.8	1	54.5	2.50	1	3	3	2	2	175
BH-M4	52.4	31.4	83	1	56	18	8	18	34.7	7	14.2	2.05	35.0	12.8	0.46	51.6	1	56.5	2.25	1	4	3	4	4	178
BH-M5	52.5	33.2	89	1	65	15	8	12	27.8	10	13.9	2.04	35.6	12.6	0.44	51.3	1	55.0	2.25	1	4	3	4	4	171
IAC18-M	57.6	28.5	54	2	33	23	15	29	48.7	10	14.7	1.90	32.2	13.0	0.43	52.6	2	58.8	2.50	2	4	3	4	4	188
IAC17-M	58.7	31.4	59	3	34	19	14	33	50.2	15	13.3	1.74	34.5	11.3	0.38	55.8	2	56.0	1.50	1	1	3	2	2	160
IAC24-M	54.1	28.1	61	3	7	4	10	79	81.1	44	14.9	1.88	44.7	13.9	0.48	59.6	3	61.5	2.25	3	4	3	4	4	200
ANA-M1	54.2	25.8	17	18	4	8	15	73	82.2	48	12.8	1.72	54.2	10.9	0.45	50.8	1	54.8	2.50	1	1	3	2	2	182
ANA-M2	54.2	22.9	7	30	3	7	8	82	91.4	51	12.9	1.73	52.3	11.1	0.43	50.8	1	56.8	2.25	1	4	3	2	2	182
ANA-M3	53.4	24.3	11	27	8	5	10	77	89.0	39	12.9	1.84	47.7	11.0	0.44	51.9	1	53.5	2.00	1	4	3	2	2	175
BH1146	57.8	31.5	73	2	30	24	11	35	52.1	18	14.9	1.79	42.6	13.0	0.39	55.8	2								
IAC24	54.2	29.0	64	4	4	7	15	74	79.1	52	15.4	1.89	37.5	14.1	0.44	59.0	2	59.0	1.75	2	4	5	5	5	192
IAC18	58.2	32.8	69	2	31	18	15	36	53.5	25	14.6	1.81	35.6	12.9	0.37	51.3	1	55.0	1.50	1	1	1	1	1	150
IAC17	58.8	32.2	68	3	30	20	13	37	54.7	18	14.5	1.76	37.6	12.6	0.36	50.8	1	54.0	1.50	1	1	3	1	1	142
ANAHUAC	55.3	28.6	31	12	4	11	16	69	77.3	44	13.6	1.76	57.1	12.0	0.44	51.3	2	58.5	3.75	2	5	5	5	5	200
BAJIO-PLU	47.8	30.1	53	7	91	5	2	2	-4.2	14	13.0	1.84	35.6	11.3	0.49	50.8	1	56.8	2.00	1	1	3	1	1	160
TOPABOR	53.8	31.1	67	3	3	3	18	76	77.1	42	13.7	1.87	49.3	11.7	0.48	50.2	1	56.8	2.50	1	3	6	5	5	191
CENTAUR	47.8	28.9	49	7	94	3	1	2	-5.6	6	13.2	1.79	35.5	11.0	0.50	49.8	1	54.8	2.50	1	1	3	1	1	155
SALAMAN	49.4	26.6	42	9	69	9	3	19	22.8	10	13.4	2.04	38.6	11.9	0.50	50.8	1	57.0	3.25	1	1	5	1	1	182

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 29 (cont)

LOCATION: Crookston, MN
NURSERY: Specials

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
					DISTRIBUTION					PRO	ASH (14% mb)	FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)											
					A	B	C	D																
														INDEX										
BAJIO	55.3	26.4	29	17	11	12	22	55	65.0	39	13.9	1.88	57.7	12.1	0.45	53.5	2	54.5	3.50	3	3	6	4	200
CHECK	57.2	30.0	82	3	2	8	26	64	69.8	69	14.5	1.76	62.8	12.4	0.42	56.9	2	56.5	2.25	2	3	6	4	190

DISTRIBUTION: A= % Soft

B= % Semt-Soft

C= % Semt-Hard

D= % Hard

RATINGS:		0		3		6	
		STICKY-WEAK		PLIABLE		ELASTIC	
DOUGH CHAR (DC):		YELLOW		GREY		DULL	
CRUMB COLOR (CC):		IRREG, THICK		OPEN, THICK		CREAMY	
CRUMB GRAIN (CG):		HARSH		COARSE		BRIGHT WHITE	
CRUMB TEXTURE (CT):						FINE	
						SILKY	

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 30

LOCATION: St. Paul, MN
NURSERY: Specials

FARGO, ND

VARIETY		TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR		WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)
						A	B	C	D	INDEX	HARD- NESS	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)									
Specials																									
BH-M1	58.6	37.9	81	1	4	6	25	65	62.2	62	14.0	1.92	57.2	11.7	0.53	53.2	1	59.0	2.75	2	4	5	5	5	170
BH-M2	51.1	29.9	83	2	92	6	1	1	7.3	9	13.6	2.11	43.2	11.8	0.44	51.3	2	58.0	3.00	2	4	5	5	5	178
BH-M3	51.4	29.4	74	2	88	5	4	3	12.1	8	14.0	1.96	37.4	12.1	0.42	50.8	2	56.8	3.00	2	4	3	5	5	178
BH-M4	51.4	30.6	74	2	87	7	2	4	10.9	9	14.0	2.13	43.8	11.9	0.47	50.2	2	58.5	2.75	2	4	5	5	5	175
BH-M5	49.9	28.5	68	3	94	4	1	1	7.6	4	14.1	2.24	36.4	12.4	0.46	51.6	2	57.5	2.75	2	4	3	4	4	168
IAC18-M	57.9	29.6	61	3	61	20	9	10	30.0	11	15.3	2.18	40.4	13.7	0.46	53.5	2	61.5	3.00	2	3	6	6	6	184
IAC17-M	55.7	30.3	57	5	78	15	4	3	20.8	9	15.1	2.07	38.1	13.0	0.41	55.5	2	61.5	1.75	2	1	3	6	6	174
IAC24-M	54.2	28.2	66	4	10	5	12	73	64.9	42	14.8	2.00	47.8	13.0	0.49	58.2	3	64.5	2.25	3	3	3	6	6	192
ANA-M1	56.8	31.2	48	6	4	9	27	60	66.0	55	13.0	1.85	54.3	10.9	0.48	50.8	1	58.8	2.50	2	3	5	5	5	173
ANA-M2	56.6	29.9	41	6	5	11	25	59	66.2	52	13.8	1.91	54.3	11.3	0.41	53.2	1	61.0	2.25	2	1	5	5	5	182
ANA-M3	57.7	35.1	45	5	85	8	4	3	17.2	18	16.2	2.13	51.9	11.3	0.40	51.9	2	60.0	2.75	2	4	5	5	5	180
BH1146	57.8	30.4	74	3	8	6	23	63	61.3	53	15.3	1.92	41.9	14.3	0.37	55.5	2	59.0	1.75	2	4	3	4	4	178
IAC24	55.4	34.0	71	2	78	11	5	6	20.9	22	15.7	2.18	45.7	13.6	0.48	59.3	3	65.0	2.25	3	3	3	6	6	198
IAC18	57.6	33.6	67	3	80	12	4	4	20.0	23	15.5	2.15	23.2	13.4	0.39	55.5	2								
IAC17	58.0	35.4	76	1	81	10	7	2	19.9	11	15.9	1.88	33.3	13.5	0.37	55.0	2	62.0	1.50	2	4	3	4	4	172
ANAHUAC	56.6	33.8	72	2	5	13	36	46	57.7	50	13.9	1.89	50.0	11.5	0.42	51.3	2	57.0	3.50	2	5	5	4	4	185
BAJIO-PLU	50.9	37.8	81	1	98	1	0	1	-10.3	16	14.3	1.83	37.7	11.5	0.35	52.6	1	58.8	2.50	2	4	3	5	5	174
TOPABOR	52.5	32.6	80	1	9	15	31	45	58.0	36	14.3	2.09	49.0	12.1	0.47	54.6	1	62.8	2.50	2	4	5	6	6	192
SALAMAN	54.1	36.4	83	1	80	5	4	11	12.6	22	13.9	2.21	42.1	11.5	0.45	51.9	2	60.0	2.75	3	3	3	6	6	183
BAJIO 66	57.1	31.5	57	4	18	33	27	22	47.5	43	14.8	1.87	52.1	12.5	0.40	54.3	2	58.5	3.00	3	3	5	6	6	200

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 30 (cont)

LOCATION: St. Paul, MN
NURSERY: Specials

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	BAKE ABS	MIX TIME (min)	D C	C C	C G	C T	LOAF VOL (cc)		
					DISTRIBUTION					PRO	ASH (14% mb)	EXT (%)	FLOUR PRO (14 % mb)											
					A	B	C	D															INDEX	
CHECK	58.5	31.3	80	1	1	6	19	74	66.5	69	14.8	1.94	59.9	12.4	0.44	56.9	2	60.8	3.00	3	5	3	6	220

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:		0		3		6	
		STICKY-WEAK		ELASTIC		BUCKY	
DOUGH CHAIR (DC):		YELLOW		DULL		BRIGHT WHITE	
CRUMB COLOR (CC):		IRREG, THICK		OPEN, THICK		FINE	
CRUMB GRAIN (CG):		HARSH		COARSE		SILKY	
CRUMB TEXTURE (CT):							

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 31

LOCATION: *Brookings, SD*
NURSERY: PPY

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR		WHEAT		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D	INDEX	HARD- NESS	PRO	ASH (14% mb)	FLOUR EXT (%)	PRO				ASH (14% mb)
RUSS	59.1	32.0	75	4	0	8	24	68	77.5	77	14.6	1.79	65.4	13.7	0.43	59.0	3	400
OXEN	60.5	29.4	63	4	0	3	15	82	86.0	85	14.5	1.73	69.2	13.7	0.37	58.6	3	400
SD3430	62.4	32.4	71	4	1	5	22	72	79.5	78	14.1	1.70	66.0	13.2	0.43	59.3	3	400
SD3432	61.3	32.4	80	2	1	10	20	69	77.8	78	14.7	1.81	65.1	14.1	0.35	58.2	2	378
SD34333	59.0	31.7	73	3	5	12	21	62	75.5	59	14.2	1.68	67.0	13.5	0.35	57.3	2	400
SD3437	61.0	32.9	79	4	32	29	15	24	46.2	27	14.3	1.73	56.6	13.0	0.32	53.2	2	385
SD3440	60.2	34.5	80	2	3	16	23	58	73.4	63	14.8	1.74	64.8	13.8	0.36	62.5	2	378
SD3446	60.4	32.8	71	4	10	24	18	48	62.5	39	13.6	1.80	63.2	12.7	0.41	57.9	3	400
SD3449	61.5	28.8	64	5	1	10	17	72	78.9	55	14.7	1.77	61.7	13.7	0.41	64.0	5	390
SD3452	58.9	33.6	81	2	1	5	22	72	80.6	67	15.7	1.83	62.3	14.8	0.43	59.0	1	279
SD3455	61.2	32.7	65	4	4	6	26	64	70.2	58	14.2	1.83	64.5	13.2	0.38	59.6	3	338
SD3457	58.8	33.0	76	3	1	5	21	73	78.8	80	14.8	1.76	62.3	13.4	0.40	62.1	10	400
SD3458	60.6	33.7	74	3	1	13	32	54	66.1	59	13.6	1.70	64.2	12.7	0.39	56.9	2	291

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 32

LOCATION: *Groton, SD*
NURSERY: PPY

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C		HARD- NESS	PRO (14% mb)		PRO (14 % mb)	ASH			

RUSS	59.2	29.0	72	8	0	3	16	81	75.2	68	14.7	1.73	69.5	14.0	0.42	62.7	4	400
OXEN	58.2	27.5	52	3	1	7	20	72	70.1	61	14.5	1.45	71.4	13.5	0.38	60.5	3	400
SD3430	59.5	27.3	50	3	1	5	8	86	78.7	69	13.8	1.59	67.3	12.8	0.42	59.0	3	381
SD3432	59.7	29.0	66	0	2	13	17	68	75.6	65	15.7	1.63	67.6	14.7	0.38	60.8	3	400
SD3433	61.4	29.0	59	2	3	9	20	68	72.0	59	15.0	1.66	71.0	14.1	0.39	59.3	2	353
SD3437	60.6	30.1	74	1	39	24	15	22	44.6	30	15.0	1.57	62.5	13.7	0.35	60.3	3	379
SD3440	60.0	30.8	74	1	3	13	21	63	71.7	59	15.9	1.66	67.3	15.0	0.38	61.1	2	400
SD3446	59.1	31.3	75	1	13	27	24	36	55.8	44	14.7	1.77	68.9	14.0	0.43	59.6	5	400
SD3449	59.1	27.8	46	3	4	12	19	65	70.0	46	14.9	1.63	67.6	14.3	0.43	61.4	5	374
SD3452	58.6	30.2	75	1	2	6	16	76	79.8	70	16.0	1.71	66.7	15.1	0.43	58.6	2	272
SD3455	61.0	29.1	58	2	2	10	21	67	71.1	62	15.0	1.60	66.4	13.8	0.36	61.1	3	400
SD3457	56.6	26.8	56	3	0	1	11	88	83.8	77	15.0	1.55	64.8	13.9	0.39	61.1	10	387
SD3458	61.0	29.8	56	3	0	3	20	77	74.4	67	13.6	1.52	66.0	12.7	0.39	56.9	1	300

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 33

LOCATION: Brookings, SD

FARGO, ND

NURSERY: PYT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR (14% mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14% mb)				
					A	B	C	D										INDEX
RUSS	60.7	32.9	84	2	1	6	23	70	74.6	75	14.0	1.77	66.0	13.2	0.41	58.2	3	400
OXEN	60.2	30.1	67	4	1	4	20	75	79.7	74	14.1	1.68	66.7	13.2	0.37	59.0	3	378
SD3400	60.2	27.8	62	5	1	2	6	91	99.4	76	14.6	1.81	63.2	13.7	0.42	58.6	3	146
SD3405	59.0	28.3	66	7	1	3	11	85	85.9	74	14.0	1.76	64.8	12.8	0.40	56.5	2	379
SD3407	60.8	37.4	82	2	1	11	18	70	81.9	80	13.5	1.68	65.1	12.4	0.38	56.2	3	388
SD3410	59.0	32.6	74	5	0	4	10	86	96.0	73	15.0	1.93	63.6	13.7	0.42	56.5	3	387
SD3411	59.4	27.9	68	6	0	1	8	91	98.2	61	13.5	1.75	62.3	12.5	0.41	51.6	2	340
SD3412	59.7	32.0	69	5	4	12	23	61	70.6	47	13.3	1.65	62.9	12.6	0.40	56.5	2	400
SD3413	60.5	28.8	64	9	2	9	12	77	87.7	54	13.6	1.75	65.4	12.3	0.36	54.6	2	175
SD3414	61.0	27.8	52	8	1	3	7	89	96.6	72	14.3	1.67	66.4	13.4	0.39	56.5	3	400
SD3415	61.4	31.1	79	4	1	3	7	89	95.3	73	14.3	1.70	63.5	13.1	0.38	57.6	3	400
SD3416	60.5	33.2	75	4	1	11	29	59	69.1	73	14.0	1.72	67.6	13.4	0.37	57.3	4	400
SD3417	60.1	24.4	48	1	1	3	16	80	78.0	68	13.5	1.74	65.4	12.9	0.38	57.6	3	400
SD3419	60.5	35.0	75	4	1	11	21	67	75.4	71	14.4	1.75	64.2	13.1	0.37	58.2	4	400
SD3420	62.3	29.6	68	5	1	7	18	74	79.2	77	14.0	1.80	65.7	12.9	0.39	56.2	3	400
SD3422	61.3	29.6	66	5	0	3	12	85	97.1	73	15.4	1.83	62.9	14.1	0.38	58.2	3	223
SD3423	59.8	33.1	76	4	0	6	15	79	90.7	76	15.1	1.71	65.7	14.1	0.41	59.6	3	396
SD3429	62.0	29.2	70	5	0	2	13	85	89.6	70	13.5	1.71	62.6	12.3	0.38	57.3	3	400

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 34

LOCATION: *Groton, SD*
NURSERY: *PYT*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO (14% mb)	ASH (14% mb)		PRO (14% mb)	ASH (14% mb)				
					A	B	C	D										INDEX
RUSS	59.6	29.9	71	2	1	4	18	77	76.4	76	14.6	1.69	65.7	13.8	0.40	60.0	3	400
OXEN	58.8	26.9	54	3	1	2	19	78	75.3	75	14.4	1.61	67.3	13.4	0.34	57.6	3	380
SD3400	60.2	25.9	20	5	0	2	5	93	88.9	81	15.0	1.58	61.0	13.7	0.38	57.6	3	400
SD3405	59.8	26.8	48	4	0	2	6	92	88.2	84	15.2	1.68	64.5	14.0	0.36	57.9	3	356
SD3407	59.0	30.2	59	2	0	5	10	85	90.4	81	13.9	1.51	62.6	12.5	0.36	56.2	3	400
SD3410	58.5	29.9	54	2	0	4	11	85	82.2	82	16.0	1.75	63.6	15.1	0.39	59.3	3	400
SD3411	57.6	27.0	35	4	2	5	16	77	78.4	64	15.0	1.60	57.4	13.5	0.34	55.0	3	380
SD3412	58.4	28.1	43	4	3	11	20	67	67.7	50	13.9	1.56	64.2	13.0	0.37	55.5	2	400
SD3413	57.4	23.0	10	15	3	8	24	65	72.7	52	14.4	1.69	62.9	13.2	0.37	56.2	2	331
SD3414	60.5	24.7	16	6	1	1	7	91	91.0	73	14.6	1.52	66.3	13.7	0.38	56.5	3	400
SD3415	59.8	24.7	39	4	1	3	7	89	84.2	68	14.3	1.59	63.9	13.1	0.37	53.5	3	400
SD3416	59.8	29.2	64	3	0	8	21	71	69.6	65	14.4	1.58	63.8	Num				400
SD3417	59.9	22.0	7	11	3	6	15	76	71.2	63	13.8	1.57	67.3	13.1	0.37	57.6	3	400
SD3419	60.5	32.1	71	2	1	8	22	69	72.2	67	15.0	1.66	66.7	13.8	0.34	57.3	3	400
SD3420	61.8	26.9	29	5	2	4	13	81	82.9	68	14.4	1.54	65.4	13.1	0.37	53.5	2	400
SD3422	61.7	26.3	28	4	1	6	11	82	84.9	77	15.1	1.72	63.6	14.0	0.40	57.3	2	375
SD3423	58.9	30.1	60	3	3	7	16	74	77.6	81	15.5	1.70	64.2	14.7	0.38	57.9	2	390
SD3429	59.3	27.3	22	5	3	5	7	85	84.3	71	14.0	1.51	62.6	12.9	0.38	55.0	2	400

DISTRIBUTION: A=% Soft
 B=% Semi-Soft
 C=% Semi-Hard
 D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 35

LOCATION: St. Paul, MN
NURSERY: PY-1

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO	ASH		PRO	ASH				
CHRIS	58.9	27.6	67	3	0	6	14	80	85.6	64	15.2	1.74	68.2	14.8	0.44	62.1	3	400
VERDE	58.7	30.5	71	3	3	10	24	63	69.3	66	14.1	1.80	69.8	13.4	0.44	60.8	3	334
2375	59.1	31.4	64	4	2	6	18	74	81.5	69	14.8	1.93	67.9	13.8	0.46	60.3	3	400
MN97001	58.6	33.6	67	2	1	7	25	67	70.3	85	14.2	1.74	69.4	13.0	0.44	62.1	4	370
MN97003	59.2	31.6	61	3	4	11	21	64	73.6	63	14.7	1.73	68.2	13.9	0.45	62.1	3	400
MN97004	58.8	28.6	62	3	2	8	22	68	75.0	46	13.3	1.79	56.8	12.1	0.39	56.2	2	400
MN97006	58.2	30.2	67	3	3	11	25	61	72.0	46	13.4	1.81	70.8	12.7	0.43	57.3	2	400
MN97008	59.2	29.1	64	3	0	2	10	88	84.9	70	16.0	1.82	67.3	15.1	0.47	63.1	3	400
MN97009	57.0	29.5	56	5	9	16	27	48	64.9	58	14.7	1.72	68.9	13.6	0.41	62.1	4	400
MN97010	59.0	30.9	66	4	2	6	17	75	80.7	67	14.3	1.75	70.4	13.3	0.48	62.5	3	361

DISTRIBUTION: A=% Soft

B=% Semt-Soft

C=% Semt-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 36

LOCATION: St. Paul, MN
NURSERY: PY-2

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)						

CHRIS	58.4	27.1	67	3	8	12	20	60	72.8	66	15.3	1.75	67.6	14.8	0.44	60.8	3	400
VERDE	56.8	28.9	69	3	1	3	12	84	78.7	71	14.2	1.93	69.4	13.4	0.45	58.2	2	370
2375	59.4	30.8	61	3	1	4	19	76	79.1	62	14.9	1.80	67.9	14.0	0.46	59.3	2	400
MN97022	57.8	29.2	62	4	1	9	23	67	70.7	53	13.6	1.74	68.2	13.0	0.43	59.3	2	391
MN97039	58.6	28.8	51	5	3	8	24	65	73.3	45	14.1	1.85	68.2	13.1	0.44	57.9	2	400

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 37

LOCATION: St. Paul, MN
NURSERY: PY-3

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		INDEX	PRO		ASH	PRO				ASH
CHRIS	58.3	27.0	67	3	1	2	12	85	88.9	75	15.3	1.77	67.3	14.9	0.46	61.1	3	371
VERDE	56.1	27.4	63	5	0	1	16	83	78.7	69	14.1	1.87	68.9	13.2	0.46	59.0	2	302
2375	58.2	30.9	59	4	1	9	21	69	76.4	63	14.8	1.85	67.0	14.1	0.45	60.5	3	400
MN97045	57.7	29.7	69	4	1	10	23	66	71.4	75	13.4	1.79	67.3	12.5	0.42	58.2	2	389
MN97051	55.1	27.9	54	6	2	7	25	66	70.6	53	13.5	1.80	66.0	12.4	0.46	56.9	2	400
MN97060	57.0	26.1	42	8	1	3	19	77	74.6	54	13.5	1.89	63.8	12.6	0.44	55.0	1	372
MN97063	57.4	28.8	63	4	2	6	20	72	77.4	69	14.0	1.76	67.6	13.0	0.43	58.6	4	400

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 38

LOCATION: *St. Paul, MN*
NURSERY: PY-4

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)						

CHRIS	58.3	26.7	63	3	0	5	13	82	83.7	81	15.3	1.77	64.5	14.8	0.44	60.3	3	400
VERDE	58.0	29.0	70	2	2	3	21	74	73.7	81	14.0	1.80	68.9	13.2	0.42	58.6	3	331
2375	58.8	33.1	63	3	5	14	25	56	67.1	79	14.9	1.81	66.0	13.7	0.43	59.3	3	400
MN97072	56.6	25.0	22	10	2	8	25	65	66.3	65	15.8	1.89	63.9	15.0	0.42	59.3	3	400
MN97073	58.1	27.8	44	5	2	4	22	72	68.9	70	15.4	1.84	62.0	14.4	0.43	59.3	2	400
MN97081	57.8	31.5	64	4	0	8	24	68	69.6	71	14.2	1.94	63.8	13.2	0.47	59.3	2	272
MN97083	54.7	26.9	48	6	2	7	21	70	67.5	54	14.2	1.87	64.5	13.5	0.49	60.8	4	400
MN97084	55.0	27.2	51	6	2	5	22	71	68.1	60	14.3	1.94	64.2	13.5	0.49	61.8	4	387

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 39

LOCATION: *St. Paul, MN*
NURSERY: *PY-5*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)	FLOUR (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH		PRO	ASH			
CHRIS	58.8	28.1	69	3	2	6	14	78	77.3	75	15.5	1.84	63.6	14.8	0.44	61.4	3 400
VERDE	57.6	28.5	72	3	3	4	23	70	70.2	77	14.3	1.88	66.4	13.4	0.42	60.3	3 321
2375	60.2	32.6	67	3	3	10	20	67	71.5	73	14.8	1.84	65.4	14.0	0.42	60.0	3 400
MN97087	58.6	28.7	60	5	2	8	25	65	68.7	55	13.4	2.00	60.7	12.5	0.52	58.2	2 318
MN97089	56.6	27.4	59	4	4	10	21	65	69.5	60	14.0	1.87	66.0	13.3	0.53	59.0	3 386
MN97091	56.6	30.0	63	4	3	13	26	58	64.7	58	13.9	2.09	64.2	12.6	0.56	58.2	2 300
MN97097	58.8	33.4	73	2	6	17	22	55	65.4	61	13.9	1.81	62.3	12.9	0.44	59.0	2 240
MN97105	57.8	30.6	69	3	0	2	14	84	76.0	76	14.2	2.01	60.7	13.2	0.57	59.6	2 353

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 40

LOCATION: *St. Paul, MN*
NURSERY: *PY-6*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR (14% mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)		PRO	ASH (14% mb)			

CHRIS	58.2	28.4	72	3	1	5	21	73	77.2	83	15.2	1.84	64.8	14.6	0.45	60.8	3	381
VERDE	57.8	29.2	74	2	2	6	19	73	70.0	78	14.2	1.81	68.6	13.5	0.44	60.0	3	307
2375	58.5	31.6	67	3	1	10	19	70	74.9	73	14.7	1.86	67.0	14.0	0.46	61.1	3	400
MN97118	57.9	32.6	73	3	2	12	25	61	71.2	62	13.6	1.84	62.9	12.9	0.42	58.6	1	360
MN97119	58.6	29.0	55	4	18	24	17	41	59.9	27	13.4	1.78	50.5	12.1	0.38	52.2	1	262
MN97123	55.8	28.0	53	6	0	6	18	76	71.8	57	15.2	1.91	60.7	14.3	0.34	58.6	2	274
MN97126	56.9	26.0	37	8	1	2	9	88	80.8	85	14.8	2.01	61.7	13.9	0.54	60.5	3	400

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 41

LOCATION: St. Paul, MN
NURSERY: PY-7

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)				
CHRIS	58.4	25.9	62	4	1	6	14	79	81.3	79	15.2	1.80	64.2	15.0	0.44	60.5	3	344
VERDE	57.8	28.5	70	2	1	5	23	71	71.9	75	14.1	1.89	67.3	13.4	0.43	59.3	2	246
2375	59.2	32.8	67	4	1	7	24	68	74.9	77	14.6	1.99	65.1	13.9	0.45	59.0	3	379
MN97139	56.6	29.4	63	4	1	6	20	73	74.2	78	14.1	1.86	65.4	13.5	0.46	58.2	2	274

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 42

LOCATION: St. Paul, MN
NURSERY: PY-8

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D									

CHRIS	59.4	27.6	70	3	2	5	16	77	77.5	79	15.2	1.81	64.5	14.3	0.42	59.0	3	393
VERDE	58.0	28.2	68	3	1	9	18	72	70.9	71	14.1	1.83	67.3	13.5	0.42	57.3	2	238
2375	59.5	32.5	68	3	2	8	27	63	71.6	71	14.3	1.87	67.0	13.7	0.52	57.9	3	400
MN97149	55.7	30.7	65	4	1	5	17	77	72.9	79	14.2	1.95	64.8	13.7	0.50	58.2	2	400
MN97156	57.0	30.2	60	5	2	7	30	61	65.4	51	14.2	1.90	61.3	13.8	0.49	55.8	1	381
MN97167	57.6	28.6	57	5	0	4	16	80	75.2	78	14.3	1.90	66.4	13.5	0.46	58.2	3	400
MN97168	60.0	29.1	69	3	1	4	14	81	72.1	68	14.0	1.77	63.6	13.4	0.43	61.8	5	354

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 43

LOCATION: St. Paul, MN
NURSERY: PY-9

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO (14% mb)	ASH (14% mb)		PRO (14 % mb)	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	59.0	28.0	68	3	0	8	17	75	77.4	79	15.4	1.83	64.8	15.2	0.43	60.3	3	400
VERDE	57.6	28.6	68	3	0	5	22	73	71.2	75	14.3	1.83	67.9	13.5	0.45	59.0	2	283
2375	59.7	33.6	70	3	3	8	25	64	71.6	73	14.8	1.83	65.4	13.9	0.43	57.6	2	400
MN97172	58.3	26.3	36	8	4	7	21	68	70.1	53	14.3	1.98	63.8	13.3	0.43	57.3	2	358
MN97173	57.9	26.8	45	6	0	2	7	91	81.9	69	13.8	1.97	61.7	12.7	0.55	56.9	2	350
MN97178	57.0	25.0	24	11	2	5	13	80	77.4	60	15.0	1.90	66.4	14.8	0.79	60.3	4	400
MN97179	56.8	26.7	41	6	3	3	10	84	82.2	66	15.6	2.02	66.0	15.3	0.49	60.0	3	400
MN97183	57.0	25.0	50	5	2	2	5	91	87.4	62	14.7	1.84	67.0	14.4	0.44	58.6	3	399

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 44

LOCATION: St. Paul, MN
NURSERY: PY-10

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14% mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C		PRO	ASH						

CHRIS	58.3	26.7	63	3	0	2	13	85	87.0	69	15.5	1.94	65.1	14.9	0.45	60.3	3	388
VERDE	57.8	28.0	66	4	2	4	20	74	77.1	74	14.5	1.90	67.3	13.8	0.42	59.0	3	315
2375	54.0	29.3	37	8	5	16	23	56	67.9	42	15.5	2.01	58.5	14.7	0.45	58.2	3	307
MN97195	60.1	28.8	45	6	1	4	14	81	80.7	69	15.7	1.80	63.2	15.2	0.44	60.5	4	378
MN97198	60.9	25.8	32	8	19	29	23	29	52.8	19	15.2	1.91	49.5	13.5	0.37	56.2	3	260
MN97209	56.4	27.2	47	10	1	3	13	83	76.9	60	14.2	1.88	62.6	13.3	0.45	60.3	4	366

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 45

LOCATION: *St. Paul, MN*
NURSERY: PY-11

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)		
					A	B	C		D	INDEX	PRO	ASH (14% mb)				PRO	ASH (14 % mb)

CHRIS	58.4	26.3	58	4	2	2	12	84	80.2	78	15.2	1.82	62.6	14.3	0.43	60.8	4	345
VERDE	57.8	27.9	63	3	1	6	16	77	74.5	71	14.3	1.83	66.4	13.5	0.41	61.1	3	334
2375	58.6	28.1	47	4	0	4	12	84	83.9	70	14.3	1.91	64.2	13.4	0.48	59.0	3	368
MN97211	55.8	29.3	52	5	4	10	25	61	69.3	46	15.1	1.99	58.5	14.3	0.43	57.6	2	311
MN97213	56.2	30.6	57	5	1	3	17	79	81.1	64	14.9	1.94	63.0	13.8	0.50	57.3	3	180
MN97214	56.4	32.5	66	4	2	6	15	77	79.3	68	15.4	1.98	60.7	14.3	0.48	57.6	2	185

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 46

LOCATION: *St. Paul, MN*
NURSERY: PY-12

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)						

CHRIS	59.0	27.5	68	3	1	4	16	79	80.5	68	15.5	1.85	64.8	15.1	0.44	60.3	3	400
VERDE	57.1	28.3	65	5	1	5	19	75	77.1	75	14.4	1.83	67.3	13.6	0.45	60.0	2	400
2375	59.9	32.9	66	3	2	10	22	66	77.6	63	14.8	1.90	66.4	13.6	0.57	60.5	3	400
MN97237	57.5	24.3	25	12	1	0	3	96	101.4	69	14.0	2.00	60.4	13.4	0.57	60.0	3	272

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 47

LOCATION: *St. Paul, MN*
NURSERY: PY-13

FARGO, ND

VARIETY	TW (lb/hu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D										
CHRIS	58.5	26.8	63	3	1	5	13	81	81.0	71	15.1	1.75	64.2	14.8	0.44	60.5	4	387
VERDE	57.8	27.9	70	4	1	4	18	77	76.3	75	14.6	1.81	65.4	13.5	0.43	60.3	3	278
2375	60.3	34.1	72	4	2	9	27	62	71.5	68	14.2	1.85	70.5	13.3	0.45	59.3	3	394
MN97255	58.9	32.5	70	2	0	12	30	58	72.2	63	14.0	1.66	69.5	13.2	0.44	59.0	2	285
MN97257	58.3	32.2	70	3	2	11	30	57	66.6	54	14.0	1.95	61.3	13.1	0.47	57.9	2	236
MN97261	56.9	28.0	41	10	0	5	14	81	79.2	62	13.2	1.73	66.4	12.4	0.50	57.3	2	263

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 48

LOCATION: St. Paul, MN
NURSERY: PY-14

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C		PRO	ASH (14% mb)		PRO	ASH (14% mb)			

CHRIS	59.4	27.3	63	4	1	7	14	78	76.4	71	14.9	1.82	67.3	14.2	0.45	60.0	3	400
VERDE	58.1	29.6	72	3	1	6	20	73	76.5	73	13.8	1.79	69.8	13.1	0.47	59.6	3	271
2375	59.8	33.2	70	2	1	9	25	65	72.2	64	14.1	1.70	69.4	13.2	0.46	58.6	3	400
MN97283	59.1	27.3	56	6	1	5	21	73	76.7	67	15.3	1.79	67.6	14.7	0.48	59.6	3	351
MN97286	59.9	30.6	68	3	0	2	13	85	87.1	68	13.8	1.89	67.3	13.4	0.51	57.9	2	246

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 49

LOCATION: *St. Paul, MN*
NURSERY: PY-15

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO (14% mb)	ASH (14% mb)		PRO (14 % mb)	ASH				
CHRIS	58.9	28.8	66	3	3	5	17	75	76.5	76	15.0	1.78	66.4	14.7	0.44	60.8	3	383
VERDE	58.4	30.4	76	3	3	6	25	66	70.6	73	14.0	1.95	68.9	12.8	0.45	60.0	3	307
2375	60.2	33.5	69	4	2	7	26	65	72.2	70	14.1	1.70	68.9	13.3	0.44	58.2	2	400
MN97302	59.2	28.8	51	6	0	5	14	81	82.0	76	15.7	1.95	67.3	14.9	0.44	62.1	4	391
MN97305	58.3	32.8	73	3	6	17	33	44	61.6	58	14.9	1.87	67.3	14.0	0.43	57.6	3	378
MN97307	58.7	28.2	60	4	1	6	20	73	73.3	56	13.6	1.84	69.2	12.8	0.46	55.3	2	361
MN97311	58.4	30.2	62	4	2	6	17	75	77.5	71	14.8	1.91	65.4	14.2	0.47	60.3	4	340

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 50

LOCATION: *St. Paul, MN*
NURSERY: *PY-16*

FARGO, ND

VARIETY	TW (lb/hu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D									

CHRIS	58.4	26.9	63	3	1	4	12	83	81.7	82	15.6	1.80	64.5	14.8	0.43	57.6	2	395
VERDE	56.8	29.4	73	2	0	4	19	77	77.7	69	13.8	1.97	65.4	12.6	0.43	56.9	3	392
2375	60.1	34.4	73	2	1	9	29	61	71.1	75	14.5	1.74	66.4	13.3	0.45	55.8	2	383
MN97332	57.5	30.1	56	4	2	7	16	75	77.3	52	14.8	2.41	58.7	13.8	0.47	56.9	3	262

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 51

LOCATION: *St. Paul, MN*
NURSERY: PY-17

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
										PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	58.6	27.2	63	3	2	5	11	82	88.4	68	15.3	1.77	64.8	14.5	0.43	59.6	3	400
VERDE	58.1	29.6	73	2	1	6	20	73	74.1	71	13.8	1.67	67.3	12.7	0.44	55.5	2	297
2375	59.1	32.8	68	3	2	3	18	77	89.3	68	13.6	1.74	67.3	12.6	0.47	55.0	2	400
MN97351	57.4	29.5	58	5	3	10	19	68	77.8	55	13.6	1.76	67.6	12.6	0.40	55.8	3	290
MN97352	58.0	28.6	57	5	1	1	12	86	84.7	77	15.0	1.77	67.0	14.1	0.51	57.9	4	385

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 52

LOCATION: St. Paul, MN
NURSERY: PY-18

FARGO, ND

VARIETY	TW (lb/hu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D										

CHRIS	58.8	27.5	65	4	0	2	18	80	76.5	72	15.7	1.77	64.5	14.7	0.44	57.6	3	400
VERDE	57.8	30.2	73	2	6	15	23	56	64.0	80	14.0	1.90	67.3	13.1	0.48	59.3	3	288
2375	59.8	33.7	73	3	1	12	24	63	72.1	69	14.4	1.85	66.4	13.3	0.44	57.3	3	400
MN97364	57.4	29.5	51	6	50	14	8	28	40.9	41	14.9	1.88	54.2	13.4	0.41	55.5	2	239
MN97365	57.6	28.0	49	7	2	3	9	86	83.7	68	14.7	1.87	63.9	13.9	0.48	60.0	3	301
MN97367	57.8	29.4	57	6	2	9	22	67	70.9	61	14.1	1.78	65.1	13.3	0.43	56.5	3	398
MN97369	57.3	29.2	56	5	4	12	15	69	74.3	64	14.7	1.91	63.6	13.7	0.47	60.0	5	400
MN97372	57.4	29.7	68	4	3	3	13	81	75.3	76	14.8	1.88	63.6	13.8	0.44	59.0	4	278

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

LOCATION: *St. Paul, MN*
NURSERY: PY-19

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 53

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
CHRIS	58.0	27.5	65	5	2	6	19	73	74.9	75	15.5	1.84	64.5	14.6	0.43	58.2	3	400
VERDE	57.3	29.0	72	3	1	4	17	78	73.3	81	14.0	1.79	67.3	13.2	0.44	57.6	2	312
2375	59.4	32.8	69	4	1	7	22	70	81.4	74	14.3	1.75	67.3	13.4	0.44	57.3	2	400
MN97395	57.8	31.5	68	3	5	24	22	49	63.0	54	14.3	1.81	65.4	13.8	0.41	56.5	2	343
MN97396	57.2	27.1	46	8	2	9	19	70	77.1	48	15.0	1.73	67.0	14.0	0.43	58.2	3	320

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 54

LOCATION: *St. Paul, MN*
NURSERY: *PY-20*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C										

CHRIS	59.5	27.8	46	8	3	6	16	75	77.0	74	15.3	1.81	66.4	14.5	0.43	59.0	3	400
VERDE	58.4	30.5	66	4	3	9	24	64	69.7	89	14.0	1.72	68.5	13.1	0.42	56.5	2	304
2375	60.1	32.7	76	5	2	10	26	62	70.7	66	13.6	1.65	67.3	12.4	0.43	55.0	2	400
MN97400	59.2	34.7	81	3	11	27	25	37	57.5	52	14.9	1.74	65.4	14.1	0.43	58.2	3	289
MN97419	58.6	27.5	56	4	3	8	21	68	69.1	66	13.0	1.80	65.1	12.1	0.41	58.6	4	318

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 55

LOCATION: St. Paul, MN
NURSERY: PY-21

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14% mb)				
					A	B	C	D										INDEX
CHRIS	60.2	28.7	65	4	0	6	16	78	79.5	77	15.1	1.78	63.9	14.2	0.40	59.6	3	400
VERDE	58.6	30.3	73	3	1	9	24	66	72.2	74	14.4	1.75	67.3	13.1	0.42	58.2	3	296
2375	60.8	34.0	69	4	3	9	30	58	69.3	71	14.4	1.78	67.0	13.2	0.44	58.2	3	400
MN97421	59.8	31.8	65	3	0	10	28	62	69.4	74	15.1	1.90	65.7	14.0	0.42	60.5	4	360
MN97422	59.9	31.6	67	3	18	26	23	33	53.8	62	14.4	1.84	66.0	13.5	0.42	58.6	4	362
MN97423	59.8	31.2	66	3	1	4	26	69	70.3	71	14.3	1.88	66.0	13.5	0.41	58.6	4	376
MN97424	59.3	31.6	67	3	1	6	28	65	67.1	72	13.7	1.85	63.2	12.5	0.49	55.5	2	309
MN97425	61.1	31.2	64	3	1	5	26	68	71.4	62	13.9	1.81	64.5	13.0	0.44	56.5	3	298
MN97434	61.1	32.5	71	3	4	8	21	67	75.4	74	15.5	1.75	64.5	14.3	0.46	64.0	4	400

DISTRIBUTION: A=% Soft
B=% Seml-Soft
C=% Seml-Hard
D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 56

LOCATION: St. Paul, MN
NURSERY: PY-22

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR	WHEAT		FLOUR EXT (%)	FLOUR (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		HARD- NESS	PRO (14% mb)		PRO	ASH			

CHRIS	57.7	27.8	61	5	2	5	20	73	80.1	68	15.7	1.77	64.2	15.2	0.45	60.0	3	384
VERDE	58.4	30.3	73	3	2	6	27	65	67.3	75	14.0	1.91	67.3	13.1	0.42	58.2	3	275
2375	59.5	32.2	69	3	1	5	23	71	77.4	68	14.5	1.74	66.0	13.4	0.43	59.0	3	398
MN97448	60.2	28.6	62	5	2	11	17	70	73.2	54	15.3	1.79	64.2	14.4	0.43	60.3	3	258
MN97450	58.2	26.3	41	9	2	3	12	83	86.6	55	13.1	1.80	64.2	12.4	0.51	57.3	3	392
MN97456	59.0	32.1	69	5	0	2	13	85	86.5	79	15.8	1.80	64.5	14.7	0.46	60.8	5	288

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 57

LOCATION: *St. Paul, MN*
NURSERY: PY-23

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO (14% mb)	ASH (14% mb)		PRO (14 % mb)	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	58.9	27.3	66	3	1	7	15	77	82.9	73	15.2	1.84	65.1	14.4	0.45	60.3	4	393
VERDE	59.0	30.4	73	3	1	8	26	65	71.2	79	14.0	1.70	67.9	12.8	0.43	58.6	3	338
2375	60.3	33.7	71	3	1	12	27	60	70.3	72	14.5	1.71	67.6	13.4	0.41	59.3	3	400
MN97469	60.5	31.3	68	5	1	4	20	75	75.5	91	13.6	1.74	68.2	12.8	0.48	59.0	3	400
MN97479	60.2	32.4	74	3	1	7	28	64	67.5	68	13.8	1.78	65.4	12.9	0.48	59.0	3	393
MN97480	60.8	34.4	79	3	0	4	23	73	73.9	98	15.3	1.93	63.9	14.4	0.49	60.8	3	318
MN97482	59.2	31.9	70	3	2	4	27	67	70.1	80	13.6	1.78	64.8	12.9	0.46	59.6	4	335

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 58

LOCATION: *St. Paul, MN*
NURSERY: PY-24

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)		
					A	B	C		D	INDEX		PRO	ASH				PRO	ASH
CHRIS	58.9	27.0	64	4	3	7	15	75	76.2	80	15.3	1.70	64.8	14.7	0.45	60.5	4	400
VERDE	58.6	30.1	74	3	1	7	26	66	67.7	80	14.2	1.76	67.9	13.1	0.43	57.3	2	361
2375	60.6	33.9	71	4	1	8	26	65	72.7	78	14.5	1.75	66.4	13.3	0.43	59.6	3	400
MN97491	60.4	32.6	72	2	1	7	17	75	76.7	87	15.2	1.95	67.6	14.2	0.63	62.5	3	376
MN97496	60.7	33.7	76	2	1	4	24	71	69.3	86	15.0	1.80	66.4	14.1	0.48	59.3	4	337
MN97498	60.7	33.4	73	3	1	2	25	72	69.5	77	15.1	1.90	65.1	14.2	0.48	58.6	4	272
MN97500	59.8	34.4	75	3	2	4	24	70	74.3	89	14.9	1.83	64.5	14.0	0.47	62.5	5	375
MN97503	58.7	33.0	70	2	1	6	24	69	69.9	76	15.0	1.85	63.9	14.2	0.48	59.3	4	400

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 59

LOCATION: *St. Paul, MN*
NURSERY: PY-25

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	54.2	24.3	34	9	3	3	7	87	90.4	67	17.3	2.06	57.9	16.2	0.47	60.0	4	376
VERDE	56.9	27.5	60	3	0	3	13	84	83.4	71	14.5	1.88	64.2	13.7	0.42	59.3	3	397
2375	57.4	31.1	57	4	2	7	20	71	80.4	69	15.7	2.03	61.3	14.5	0.46	58.6	4	400
MN97513	56.5	26.8	53	5	36	28	19	17	41.1	16	14.7	2.29	36.9	12.4	0.41	52.6	2	244
MN97514	55.3	27.2	50	7	58	19	10	13	32.4	22	14.8	2.03	33.3	12.6	0.41	55.5	3	293
MN97518	59.6	29.9	62	3	1	1	5	93	93.5	77	15.9	1.96	58.7	14.5	0.45	58.2	3	400
MN97519	58.4	32.7	63	3	27	21	9	43	57.5	28	15.4	2.07	43.9	12.5	0.38	55.0	2	250
MN97520	57.0	25.5	39	7	17	11	9	63	73.1	49	15.3	2.09	52.8	13.5	0.44	57.9	3	385

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 60

LOCATION: St. Paul, MN
NURSERY: PY-26

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR	WHEAT		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)		
					DISTRIBUTION					HARD- NESS	PRO (14% mb)	ASH (14% mb)	EXT (%)				PRO (14% mb)	ASH (14% mb)
					A	B	C	D										

CHRIS	53.8	24.9	34	16	2	9	12	77	79.6	59	15.6	1.97	60.0	14.7	0.57	57.6	3	389
VERDE	55.3	26.6	54	12	2	8	17	73	75.7	70	14.6	1.78	65.7	13.9	0.50	57.9	3	368
2375	54.9	30.5	56	19	2	4	10	84	94.4	62	14.6	1.79	61.0	13.0	0.48	57.3	3	400
MN97536	59.0	24.5	44	10	17	20	19	44	59.8	12	13.3	1.95	51.0	11.7	0.44	51.6	2	315
MN97541	59.4	26.8	57	5	1	2	4	93	93.9	64	12.9	2.04	60.6	11.7	0.54	56.5	3	326
MN97542	57.0	27.7	56	6	2	8	12	78	83.9	59	14.7	1.70	64.8	14.4	0.45	60.0	4	349
MN97543	58.3	30.4	70	5	1	4	14	81	85.1	76	15.6	1.76	65.1	14.8	0.49	60.5	4	326
MN97544	55.6	28.1	47	10	4	9	12	75	82.2	46	14.7	1.64	65.1	14.2	0.58	59.3	4	400

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 61

LOCATION: St. Paul, MN
NURSERY: PY-27

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	58.4	26.5	64	4	1	5	14	80	86.4	70	15.5	2.00	64.2	14.8	0.53	60.3	3	400
VERDE	57.9	30.1	73	3	1	6	23	70	74.7	65	14.4	1.75	67.9	13.1	0.49	57.9	3	271
2375	60.6	33.8	74	2	0	7	20	73	80.9	72	14.3	1.74	66.4	13.0	0.45	59.0	3	400
MN97548	59.7	29.7	49	5	3	7	16	74	79.8	58	15.1	1.75	63.6	14.5	0.52	63.1	4	400
MN97551	61.3	26.9	64	4	1	1	5	93	98.9	69	15.5	1.88	64.2	14.7	0.53	57.6	4	400
MN97553	54.6	23.2	22	16	3	3	7	87	86.0	55	13.6	2.17	66.0	13.0	0.73	57.9	4	400
MN97555	59.4	26.7	29	8	1	4	13	82	85.2	63	15.7	1.98	64.2	14.5	0.52	61.4	5	400
MN97558	60.8	28.2	49	7	0	1	5	94	95.5	85	14.1	1.75	65.1	13.0	0.55	57.9	3	400
MN97561	59.9	27.1	48	5	2	8	14	76	81.1	63	15.6	1.85	67.9	15.1	0.49	61.4	3	400
MN97563	59.0	28.3	67	5	10	9	8	73	75.4	54	13.9	1.74	58.9	12.4	0.47	55.0	2	363

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 62

LOCATION: St. Paul, MN
NURSERY: PY-28

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR	WHEAT		FLOUR EXT (%)	FLOUR (14% mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		HARD- NESS	PRO		PRO	ASH			

CHRIS	55.5	24.6	40	7	2	4	8	86	92.5	66	17.5	2.03	63.6	16.5	0.51	59.6	4	400
VERDE	56.5	26.3	53	4	1	1	9	89	90.3	72	15.1	2.06	66.0	13.9	0.46	58.2	3	343
2375	57.2	28.8	51	5	1	4	11	84	87.9	63	16.1	2.06	64.5	14.6	0.51	59.0	4	394
MN97568	56.2	28.7	63	4	0	1	1	88	82.3	80	15.1	1.95	63.6	14.2	0.47	59.0	4	342
MN97570	54.4	29.0	46	5	0	1	8	91	83.3	65	15.9	2.17	59.4	14.6	0.53	59.6	4	387
MN97571	56.1	27.7	58	3	0	2	12	86	85.3	76	14.5	1.91	63.0	13.4	0.43	58.2	3	254

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 63

LOCATION: *St. Paul, MN*
NURSERY: PY-29

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					DISTRIBUTION					PRO	ASH (14% mb)		PRO	ASH (14 % mb)				
					A	B	C	D										INDEX
CHRIS	58.4	24.9	58	5	1	4	12	83	84.7	62	15.6	1.96	64.5	15.1	0.55	57.9	3	386
VERDE	58.1	29.4	73	2	2	3	18	77	76.6	73	14.3	1.73	67.6	13.4	0.43	57.6	3	289
2375	60.3	32.9	70	3	1	6	26	67	77.0	81	14.7	1.67	65.4	13.5	0.45	56.2	2	394
MN97589	59.4	28.3	67	3	16	14	20	50	61.5	41	14.2	1.68	57.5	13.0	0.39	56.5	1	355
MN97596	60.1	26.5	29	14	1	2	10	87	86.7	61	13.9	1.66	62.6	13.1	0.44	60.0	5	400
MN97598	59.8	28.7	47	14	0	2	12	86	91.7	66	15.9	1.87	61.0	15.1	0.47	62.1	4	400
MN97602	60.5	29.2	67	4	0	3	10	87	84.9	80	14.9	1.82	64.8	14.2	0.44	60.8	5	400
MN97603	60.6	28.1	37	12	1	2	5	92	93.5	77	15.5	1.63	59.8	14.5	0.42	60.5	7	385
MN97604	59.0	30.2	70	3	1	3	12	84	82.0	73	15.9	1.86	66.7	15.1	0.46	61.1	7	360
MN97606	59.7	26.1	52	7	2	3	14	81	78.5	63	14.2	1.69	67.3	13.0	0.52	57.6	4	398
MN97607	59.0	29.5	70	4	2	7	18	73	75.1	77	15.6	1.84	64.8	14.6	0.44	58.2	5	354
MN97608	59.1	29.7	73	3	1	2	10	87	81.1	76	15.2	1.81	66.4	14.6	0.45	57.9	5	355
MN97609	59.6	29.9	75	2	0	2	12	86	80.4	81	15.7	1.90	66.4	14.8	0.43	59.3	5	370

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 64

LOCATION: St. Paul, MN
NURSERY: PY-30

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR	WHEAT		FLOUR EXT (%)	FLOUR (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		HARD- NESS	PRO	ASH (14% mb)	PRO	ASH (14 % mb)			

CHRIS	58.9	25.5	59	4	1	6	10	83	80.6	74	14.6	1.74	63.2	14.1	0.43	58.6	4	400
VERDE	57.6	28.8	68	4	2	4	16	78	76.2	77	14.2	1.76	66.1	13.1	0.43	57.9	2	321
2375	60.3	32.5	71	5	1	8	22	69	76.5	76	14.8	1.84	64.8	13.4	0.42	59.0	3	400
MN97611	59.1	29.3	75	2	0	1	9	90	86.1	72	15.7	1.95	67.3	14.9	0.57	60.8	5	400
MN97612	59.0	29.7	73	3	0	1	10	89	89.0	74	15.6	1.86	65.4	14.7	0.43	59.0	4	340
MN97617	60.2	31.3	76	3	1	9	27	63	69.4	74	14.9	1.74	66.7	14.1	0.43	58.6	3	333
MN97623	60.5	30.4	74	2	1	10	25	64	70.4	70	14.2	1.77	65.7	13.4	0.41	57.6	3	292
MN97626	61.0	33.3	80	2	3	7	24	66	70.2	76	14.9	1.99	65.4	13.8	0.42	59.0	4	302

DISTRIBUTION: A=% Soft
B=% Semt-Soft
C=% Semt-Hard
D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 65

LOCATION: St. Paul, MN
NURSERY: PY-31

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		MIX		FALLING NUMBER (sec)		
					DISTRIBUTION					PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14 % mb)	ASH (14 % mb)	ABS		PAT	
					A	B	C	D										INDEX
CHRIS	59.5	27.4	66	4	3	5	18	74	78.2	73	15.6	1.77	64.2	14.7	0.43	59.6	3	400
VERDE	58.2	28.5	75	3	1	5	20	74	75.8	78	14.5	1.82	66.7	13.3	0.43	57.6	2	249
2375	60.5	33.3	74	4	1	9	25	65	75.7	73	14.4	1.74	66.7	13.3	0.43	57.9	3	400
MN97636	57.0	28.4	50	7	4	6	18	72	73.3	63	12.3	1.76	66.0	11.7	0.50	56.2	4	377
MN97637	58.0	32.9	79	2	1	4	18	77	73.9	82	14.4	1.94	65.4	13.3	0.44	58.2	3	295
MN97638	58.4	26.8	54	4	1	3	10	86	80.5	92	15.3	1.84	60.7	14.5	0.50	58.6	3	286
MN97645	56.7	30.9	64	4	1	5	19	75	71.8	69	15.0	2.04	55.7	13.8	0.47	60.3	3	131
MN97649	61.2	28.1	66	4	0	4	18	78	75.5	61	14.5	1.68	64.8	13.9	0.39	60.3	4	343
MN97650	59.7	29.7	71	2	2	2	10	86	81.8	64	15.6	1.89	64.2	14.8	0.39	60.0	5	378
MN97651	59.4	27.1	66	3	1	3	6	90	87.7	75	15.5	1.98	61.5	14.6	0.43	61.4	5	311

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 66

LOCATION: St. Paul, MN
NURSERY: PY-32

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS					NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR (14% mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					DISTRIBUTION						PRO (14% mb)	ASH (14% mb)						
					A	B	C	D	INDEX									
CHRIS	59.6	26.1	64	3	2	5	16	77	76.0	76	15.7	1.76	61.1	14.9	0.41	59.3	4	389
VERDE	58.7	29.4	73	3	1	4	22	73	72.1	91	14.6	1.88	67.0	13.4	0.42	58.2	3	297
2375	61.1	34.4	69	3	2	9	26	63	68.7	77	14.8	1.79	63.9	13.6	0.40	58.2	3	400
MN97661	60.6	30.2	79	1	1	1	19	79	78.0	76	16.5	1.90	64.5	15.6	0.42	60.5	5	378
MN97664	61.5	28.7	75	2	1	0	10	89	82.4	82	16.2	1.88	64.5	15.6	0.44	60.3	5	366
MN97665	61.2	30.4	77	2	1	7	21	71	72.6	61	15.4	1.76	65.4	14.7	0.40	61.8	3	378
MN97668	61.4	28.6	76	3	1	2	13	84	84.3	81	16.2	1.76	66.0	15.4	0.43	59.3	4	393
MN97670	60.5	28.8	74	2	1	2	9	88	83.1	77	16.8	1.89	64.5	16.1	0.42	60.3	5	378

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 67

LOCATION: St. Paul, MN
NURSERY: PY-33

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO (14% mb)	ASH (14% mb)							
CHRIS	58.2	25.0	53	4	1	2	13	84	84.2	75	15.8	1.87	63.2	14.9	0.43	60.5	4	389
VERDE	58.6	27.7	69	3	0	5	15	80	77.3	80	14.5	1.77	67.9	13.4	0.47	60.8	3	309
2375	60.5	32.9	71	3	1	4	24	71	74.6	80	15.0	1.77	65.4	13.4	0.46	60.0	3	400
MN97680	59.1	30.2	65	5	47	28	12	13	36.9	19	12.4	1.69	40.4	10.4	0.39	53.2	2	303
MN97685	59.1	30.1	61	4	0	1	11	88	82.8	80	14.6	2.00	61.1	13.2	0.48	55.8	2	351
MN97686	60.1	30.5	70	5	1	1	10	88	82.9	78	15.3	1.82	66.4	14.0	0.45	56.9	3	388
MN97693	60.6	29.8	80	3	0	6	16	78	76.8	76	15.1	1.79	65.4	14.0	0.44	59.0	4	390

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 68

LOCATION: St. Paul, MN
NURSERY: PY-34

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		PRO	ASH (14% mb)						

CHRIS	58.8	27.3	67	3	8	13	22	57	68.7	71	15.7	1.81	65.7	15.1	0.44	58.2	3	368
VERDE	58.0	29.9	72	3	2	4	23	71	74.0	77	14.5	1.76	66.7	13.3	0.42	57.9	2	344
2375	58.9	32.5	66	5	2	7	19	72	78.6	75	15.2	1.84	66.0	14.0	0.43	60.0	3	400
MN97694	60.0	25.5	46	9	1	2	7	90	87.4	76	14.2	1.78	61.7	13.3	0.50	59.3	3	398
MN97695	62.2	29.2	75	3	1	8	23	68	72.2	66	15.4	1.70	67.0	14.3	0.39	62.7	5	388
MN97707	60.6	34.1	81	2	62	15	9	14	31.5	7	14.4	2.04	45.6	11.9	0.44	56.5	2	216
MN97712	59.8	27.5	61	4	30	15	13	42	54.5	36	14.8	1.95	54.1	13.1	0.43	58.2	2	219

DISTRIBUTION: A=% Soft
B=% Seml-Soft
C=% Seml-Hard
D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 69

LOCATION: *St. Paul, MN*
NURSERY: PY-35

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT		FLOUR		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D		INDEX	PRO	ASH (14% mb)	EXT (%)	PRO	ASH (14 % mb)			
CHRIS	59.7	27.8	70	3	1	4	16	79	81.8	79	15.7	1.80	64.8	14.8	0.42	59.3	3	400
VERDE	58.2	29.0	70	3	1	6	14	79	76.1	76	14.6	1.88	67.0	13.2	0.44	59.0	2	314
2375	60.5	33.4	70	3	0	9	25	66	75.8	71	15.0	1.83	64.8	13.7	0.43	59.3	3	379
MN97722	60.3	24.6	38	9	15	20	23	42	57.7	8	14.9	1.89	44.8	12.7	0.39	57.3	3	260
MN97729	57.7	24.3	25	13	2	3	11	84	86.2	46	14.3	2.09	60.7	12.9	0.50	57.3	4	400
MN97730	58.7	28.4	62	5	2	2	7	89	86.1	77	13.8	1.95	63.6	12.8	0.48	57.3	2	295
MN97733	58.4	32.4	74	2	48	15	11	26	40.8	6	15.7	1.85	47.2	13.5	0.37	54.6	2	375

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 70

LOCATION: St. Paul, MN
NURSERY: PY-36

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)	FLOUR (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D		PRO	ASH (14% mb)		PRO	ASH				
CHRIS	58.4	26.1	57	4	1	5	10	84	84.6	72	15.7	1.92	63.0	14.9	0.48	57.6	3	400
VERDE	57.8	27.6	69	4	2	4	14	80	75.4	77	14.9	1.80	66.7	13.4	0.41	57.6	2	325
2375	59.8	32.4	74	2	1	4	21	74	78.6	75	15.3	1.94	64.8	13.8	0.51	57.9	4	400
MN97736	56.2	26.0	64	2	1	6	14	79	76.4	53	15.0	1.92	59.8	14.1	0.48	57.6	3	400
MN97746	61.1	29.4	67	3	13	16	18	53	65.2	44	14.9	2.25	54.7	13.9	0.47	57.6	3	371
MN97750	59.4	30.1	78	1	33	26	16	25	46.8	10	15.9	1.97	42.9	13.3	0.43	55.8	2	274
MN97754	57.2	26.1	52	6	2	5	14	79	75.7	68	14.5	2.05	62.4	13.1	0.62	59.3	3	400
MN97756	59.9	27.4	70	3	1	2	14	83	81.9	73	14.8	1.97	62.0	13.6	0.50	57.3	2	341

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

LOCATION: *St. Paul, MN*
NURSERY: PY-37

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 71

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14% mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C	D									
CHRIS	59.7	28.6	72	3	1	9	15	75	77.1	82	15.7	1.81	15.2	0.35	60.5	3	369
VERDE	58.0	28.6	70	3	1	3	18	78	75.6	77	14.6	1.87	13.5	0.38	58.2	2	311
2375	59.9	32.7	69	4	2	8	20	70	76.9	81	15.3	1.89	13.9	0.42	58.2	2	400
MN97761	60.0	26.0	54	6	1	3	11	85	77.6	76	15.3	1.68	14.6	0.35	56.5	3	235
MN97762	59.1	31.4	81	2	21	18	22	39	54.5	33	14.2	1.90	12.7	0.41	51.9	1	389
MN97773	59.7	29.8	67	4	0	10	19	71	71.0	57	15.1	2.02	14.0	0.39	55.0	2	314

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 72

LOCATION: *St. Paul, MN*
NURSERY: *PY-39*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)		FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)		MIX ABS	MIX PAT	FALLING NUMBER (sec)
					A	B	C									

CHRIS	60.4	27.1	68	2	2	4	11	83	82.6	81	15.9	1.80	64.2	14.8	0.42	59.6	3	400
VERDE	59.0	29.0	73	3	1	4	18	77	73.1	75	14.9	1.85	66.4	13.5	0.41	59.0	3	282
2375	59.2	31.0	67	3	0	7	23	70	73.9	72	15.4	1.86	64.8	14.0	0.42	57.6	3	400
MN97800	57.2	28.2	61	5	2	6	15	77	77.3	70	14.5	1.87	64.2	13.7	0.46	63.1	3	347
MN97803	58.4	29.5	64	4	1	6	15	78	77.3	73	15.3	1.87	61.7	14.2	0.46	60.5	3	285

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 73

LOCATION: *St. Paul, MN*
NURSERY: PY-40

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION				NIR		WHEAT		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)	
					A	B	C	D	INDEX	HARD- NESS	PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (14 % mb)				ASH (14 % mb)
CHRIS	58.7	26.6	67	4	0	5	13	82	81.7	78	16.1	1.89	61.7	15.2	0.41	61.4	4	343
VERDE	57.4	27.9	63	5	1	4	17	78	72.9	79	14.9	1.93	64.8	13.5	0.41	58.6	3	377
2375	60.0	31.9	65	3	2	6	25	67	75.5	73	15.4	1.97	63.0	13.7	0.42	58.2	3	400
MN97822	56.8	24.9	34	8	1	4	11	84	77.2	57	15.4	2.12	54.6	14.3	0.45	57.3	4	388
MN97835	57.8	24.5	36	10	56	21	11	12	33.3	5	13.9	1.90	32.4	11.0	0.41			337
MN97837	58.2	29.2	65	4	2	5	18	75	72.2	53	14.2	1.87	61.6	12.7	0.47	57.9	3	329

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 74

LOCATION: St. Paul, MN

NURSERY: PY-41

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS				NIR HARD- NESS	WHEAT		FLOUR		MIX ABS	MIX PAT	FALLING NUMBER (sec)		
					DISTRIBUTION					PRO	ASH (14% mb)	FLOUR EXT (%)	PRO ASH (14 % mb)					
					A	B	C	D									INDEX	
CHRIS	59.2	27.6	70	3	1	7	9	83	85.8	81	15.6	1.97	62.6	14.7	0.43	57.9	3	400
VERDE	57.4	27.7	67	4	1	4	16	79	76.8	73	14.6	2.03	67.0	13.3	0.46	58.6	3	329
2375	59.9	35.0	73	3	3	9	29	59	69.7	73	15.3	2.01	63.6	13.7	0.42	57.9	3	400
MN97846	59.0	29.9	74	2	40	23	12	25	43.7	12	13.5	1.81	42.3	11.4	0.37	51.3	2	325
MN97847	59.1	28.8	63	3	44	23	19	14	39.6	15	13.6	2.09	42.1	11.2	0.42	52.2	2	290
MN97849	59.4	29.5	65	2	1	3	11	85	78.6	60	13.2	1.81	61.1	11.4	0.44	53.8	2	387
MN97852	57.8	29.2	72	3	29	23	26	22	46.5	15	13.9	1.85	44.3	12.1	0.43	56.2	2	316
MN97853	57.4	31.2	77	2	50	26	12	12	34.9	14	14.0	1.96	43.0	11.0	0.39	53.5	2	287
MN97854	55.8	27.0	59	5	0	2	8	90	82.0	76	15.9	2.09	60.2	14.6	0.51	58.6	5	400
MN97855	59.4	31.8	79	2	0	2	17	81	77.2	93	14.8	1.99	64.2	13.6	0.48	59.3	2	400
MN97856	59.5	30.9	78	1	44	19	12	25	42.7	7	13.5	1.80	45.6	11.3	0.37	51.6	1	319

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

